



Optimal Control of Linear Time Invariant of Singular System Based on Fourier series

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ABSTRACT

A new method for finding the optimal control of linear time invariant singular systems with a quadratic cost functional using Fourier series is proposed. Properties of Fourier series are first briefly presented and the operational matrix for integration is utilized to reduce the dynamical equations to a set of simultaneous linear algebraic equations.

Key words: Optimal control, singular systems, Fourier series, operational matrix

INTRODUCTION

For the last four decades, the orthogonal functions approach has extensively used in obtaining approximate solutions of problems described by differential equations such as analysis of linear time invariant, time varying systems, modal reduction, optimal control and system identification. The main idea of this technique is that it reduces these problems to those of solving a system of algebraic equations and thus it greatly simplifies the problem. The approach is based on converting the differential equations into a set of algebraic equations. The state and/or control involved in the equation are approximated by finite terms of the orthogonal series and using an operation matrix of integration the integral will be eliminated. The form of the operational matrix of integration depends on the particular choice of the orthogonal functions like Walsh function, block-pulse functions, Laguerre series, Jacobi series, Fourier series, Bessel series, Taylor series, shifted Legendre, Chebyshev polynomials, and Hermite polynomials. In this study, we use Fourier series to approximation both the control and state functions. It offers a different approach from the standard variational method and has the advantage of being computationally attractive. It avoids having the integral equations, created from variational methods by reducing the problem to the solution of an algebraic system of





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equations, thus providing a computationally more efficient approach. In addition, solving a system of coupled initial-boundary-value problems, a requirement with the maximum principle, is avoided. In this paper, Fourier series is employed to solve the optimal control of linear singular systems.

The main feature of optimal control problems is to minimize a given performance index in a given period of time with the minimum expenditure of force. The Fourier series integral operational matrix is utilized to approximate the state variable and each component of the control. The parameterization approach uses a finite-term Fourier series with unknown coefficient, which will be optimally found. By this, the quadratic optimization problem is transformed into a mathematical programming problem with objective of minimizing the unknown coefficients to give suboptimal solution to the problem. A necessary condition for optimality of the unknown coefficients is derived as a system of linear algebraic equations, and the solutions are used to obtain the optimal trajectory of the system.

Preliminaries and Problem Statement

Properties of the Fourier series

Suppose a signal $g(t)$ has finite energy over the interval $[0, L]$. Then $g(t)$ can be represented by a Fourier series as follows

$$g(t) = g_0 + \sum_{n=1}^{\infty} g_n \cos\left(\frac{2n\pi t}{L}\right) + g_n^* \sin\left(\frac{2n\pi t}{L}\right) \quad (1)$$

Where the Fourier coefficients g_n, g_n^* are given by

$$g_0 = \frac{1}{L} \int_0^L g(t) dt \quad (2a)$$

$$g_n = \frac{2}{L} \int_0^L g(t) \cos\left(\frac{2n\pi t}{L}\right) dt, \quad n = 1, 2, 3, \dots \quad (2b)$$

$$g_n^* = \frac{2}{L} \int_0^L g(t) \sin\left(\frac{2n\pi t}{L}\right) dt, \quad n = 1, 2, 3, \dots \quad (2c)$$

We assume that the derivative of $g(t)$ in equation (1) is described by

$$f(t) = \dot{g}(t) = f_0 + \sum_{n=1}^{\infty} \left\{ f_n \cos\left(\frac{2n\pi t}{L}\right) + f_n^* \sin\left(\frac{2n\pi t}{L}\right) \right\} \quad (3)$$

An approximation to $f(t)$ and $g(t)$ are obtained by keeping those terms in (1) and (3) for which $1 \leq n \leq r$ and discarding others.





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This may be written in a compact form as

$$g(t) = g_0\phi_0(t) + \sum_{n=1}^r \{g_n\phi_n(t) + g_n^*\phi_n^*(t)\} = G^T\Phi(t) \quad (4)$$

$$f(t) = f_0\phi_0(t) + \sum_{n=1}^r \{f_n\phi_n(t) + f_n^*\phi_n^*(t)\} = F^T\Phi(t) \quad (5)$$

Where

$$G = [g_0 \quad g_1 \quad g_2 \quad \dots \quad g_r \quad g_1^* \quad g_2^* \quad \dots \quad g_r^*]^T$$

$$F = [f_0 \quad f_1 \quad f_2 \quad \dots \quad f_r \quad f_1^* \quad f_2^* \quad \dots \quad f_r^*]^T \quad (6)$$

$$\Phi(t) = [\phi_0 \quad \phi_1 \quad \phi_2 \quad \dots \quad \phi_r \quad \phi_1^* \quad \phi_2^* \quad \dots \quad \phi_r^*]^T$$

With

$$\phi_n = \cos \frac{2n\pi t}{L}, \quad n = 0, 1, 2, 3, \dots$$

$$\phi_n^* = \sin \frac{2n\pi t}{L}, \quad n = 1, 2, 3, \dots$$

The elements of $\phi(t)$ are orthogonal in the

$$\text{Interval } t \in (0, L). \text{ i.e. } \int_0^L \phi_n \phi_m(t) dt = \begin{cases} 0 & n \neq m \\ \frac{L}{2} & n = m \end{cases}$$

The integration of vector $\Phi(t)$ defined in equation (6) can be approximation by

$$\int_0^t \Phi(t') dt' = P\Phi(t) \quad (7)$$

Where P is an $(2r+1) \times (2r+1)$ operational matrix of integration and is defined as.

$$P = L \begin{bmatrix} \frac{1}{2} & 0 & 0 & \dots & 0 & 0 & \frac{-1}{\pi} & \frac{-1}{2\pi} & \dots & \frac{-1}{(r-1)\pi} & \frac{-1}{r\pi} \\ 0 & 0 & 0 & \dots & 0 & 0 & \frac{1}{2\pi} & 0 & \dots & 0 & 0 \\ \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \dots & \vdots & \vdots \\ 0 & 0 & 0 & \dots & 0 & 0 & 0 & 0 & \dots & \frac{1}{2(r-1)\pi} & 0 \\ 0 & 0 & 0 & \dots & 0 & 0 & 0 & 0 & \dots & 0 & \frac{1}{2r\pi} \\ \frac{1}{2\pi} & \frac{-1}{2\pi} & 0 & \dots & 0 & 0 & 0 & 0 & \dots & 0 & 0 \\ \frac{1}{4\pi} & 0 & \frac{-1}{4\pi} & \dots & 0 & 0 & 0 & 0 & \dots & 0 & 0 \\ \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \dots & \vdots & \vdots \\ \frac{1}{2r\pi} & 0 & 0 & \dots & 0 & \frac{-1}{2r\pi} & 0 & 0 & \dots & 0 & 0 \end{bmatrix}$$





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The cross-product of two Fourier series vectors is

$$\phi(t)\phi^T(t) = \begin{bmatrix} \phi_0^2 & \phi_0\phi_1 & \dots & \phi_0\phi_r & \phi_0\phi_1^* & \dots & \phi_0\phi_r^* \\ \phi_1\phi_0 & \phi_1^2 & \dots & \phi_1\phi_r & \phi_1\phi_1^* & \dots & \phi_1\phi_r^* \\ \vdots & \vdots & & \vdots & \vdots & & \vdots \\ \phi_r\phi_0 & \phi_r\phi_1 & \dots & \phi_r^2 & \phi_r\phi_1^* & \dots & \phi_r\phi_r^* \\ \phi_1^*\phi_0 & \phi_1^*\phi_1 & \dots & \phi_1^*\phi_r & \phi_1^{*2} & \dots & \phi_1^*\phi_r^* \\ \vdots & \vdots & & \vdots & \vdots & & \vdots \\ \phi_r^*\phi_0 & \phi_r^*\phi_1 & \dots & \phi_r^*\phi_r & \phi_r^*\phi_1^* & \dots & \phi_r^{*2} \end{bmatrix} \tag{9}$$

By using

$$\int_0^L \phi_n\phi_m(t)dt = \int_0^L \phi_n^*\phi_m^*(t)dt = \begin{cases} 0 & n \neq m \\ \frac{L}{2} & n = m \end{cases}$$

$$\int_0^L \phi_0^2(t)dt = L$$

Where m and n can assume any of the values 1,2,3,...we can easily obtain

$$D = \int_0^L \phi\phi^T(t)dt = L \begin{bmatrix} 1 & & & & & & \\ & \frac{1}{2} & & & & & \\ & & \frac{1}{2} & & & & \\ & & & \frac{1}{2} & & & \\ & & & & \ddots & & \\ & & & & & & \frac{1}{2} \end{bmatrix} \tag{10}$$

Where D is a $(2r+1) \times (2r+1)$ matrix. Thus D is a diagonal matrix and the simple structure of this matrix plays important role in the direct method for solving optimal control problem. Further, using equation (3) we get

$$g(t) - g(0) = \int_0^t f(t')dt'$$

And from equation (4), (5) and (7), using $g(0) = K^T\Phi(t)$, we have

$$(G^T - K^T)\Phi(t) = F^T P\Phi(t)$$

Where $K^T = [g(0) \ 0_1 \ \dots \ 0_r \ 0_1^* \ \dots \ 0_r^*]$ thus we get





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$$(G^T - K^T) = F^T P \tag{11}$$

Problem statement

Consider linear time invariant (LTI) singular system

$$E\dot{x}(t) = Ax(t) + Bu(t) \tag{12}$$

$$x(0) = x_0 \tag{13}$$

Where $x \in R^p$ is the state of the system, $u \in R^z$ is the input vector of the system, $E \in R^{p \times p}$ is assumed to be singular with $0 < \text{rank}(E) < p$, and A,B are real constant matrices of appropriate size. The problem is to find the optimal control $u(t)$ and the corresponding state trajectory $x(t)$, $0 \leq t \leq L$, satisfying equation (12)-(13) while minimizing the cost function

$$J = \frac{1}{2} x^T(L) S x(L) + \frac{1}{2} \int_0^L [x^T(t) Q x(t) + u^T(t) R u(t)] dt \tag{14}$$

In equation (14), T denotes transposition, S, Q and R are matrices of appropriate dimensions, S and Q are symmetric positive semi-definite matrices and R is a symmetric positive definite matrix.

Main result

Approximation of the singular system

By expanding $x_p(t)$, $u_z(t)$ and $\dot{x}_p(t)$ in Fourier series of order r, we determine the following approximated values, i.e. for $P = 1,2,3, \dots p$, and $Z = 1,2,3, \dots z$ we get

$$x_p(t) = a_{p0} \phi_0(t) + \sum_{i=1}^r \{ a_{pi} \phi_i(t) + a_{pi}^* \phi_i^*(t) \} = A^T \Phi(t) \tag{15}$$

$$u_z(t) = b_{z0} \phi_0(t) + \sum_{i=1}^r \{ b_{zi} \phi_i(t) + b_{zi}^* \phi_i^*(t) \} = B^T \Phi(t) \tag{16}$$

$$\dot{x}_p(t) = c_{p0} \phi_0(t) + \sum_{i=1}^r \{ c_{pi} \phi_i(t) + c_{pi}^* \phi_i^*(t) \} = C^T \Phi(t) \tag{17}$$

Where $\{ a_{pi}, a_{pi}^* \}$, $\{ b_{zi}, b_{zi}^* \}$ and $\{ c_{pi}, c_{pi}^* \}$ are unknowns. Let





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$$(Ax(t))_P = y_{P0}\phi_0(t) + \sum_{i=1}^r \{y_{Pi}\phi_i(t) + y_{Pi}^*\phi_i^*(t)\} = Y^T\Phi(t) \quad (18)$$

$$(Bu(t))_P = l_{P0}\phi_0(t) + \sum_{i=1}^r \{l_{Pi}\phi_i(t) + l_{Pi}^*\phi_i^*(t)\} = L^T\Phi(t) \quad (19)$$

$$(Ex(t))_P = w_{P0}\phi_0(t) + \sum_{i=1}^r \{w_{Pi}\phi_i(t) + w_{Pi}^*\phi_i^*(t)\} = W^T\Phi(t) \quad (20)$$

Using equation (18)-(20) for each $P, P=1,2,3,\dots,p$ the right-hand side of equation (12) has the form

$$W^T\Phi(t) = (Y^T + L^T)\Phi(t)$$

By equating the coefficients of the same- order Fourier series, we obtain for $P = 1,2,3,\dots,p$ and

$$W^T = (Y^T + L^T) \quad (21)$$

Also, by using equation (11) we get the constraints

$$F_{P0} = a_{P0} - x_P(0) - \left(\frac{1}{2}c_{P0} + \frac{1}{2\pi} \sum_{j=1}^r \frac{1}{j}c_{Pj}^* \right) L = 0 \quad (22)$$

And for $i = 1,2,3,\dots,r$ we have

$$F_{Pi} = a_{Pi} + \frac{L}{2\pi i}c_{Pi}^* = 0 \quad (23)$$

$$F_{Pi}^* = a_{Pi}^* - \left(-\frac{1}{i\pi}c_{P0} + \frac{1}{2\pi i}c_{Pi} \right) L = 0 \quad (24)$$

The performance index approximation

We now approximate the performance index J by using Fourier series. Let

$$\alpha = \begin{pmatrix} (a_0 \ a_1 \ \dots \ a_r \ a_1^* \ a_2^* \ \dots \ a_r^*)^T \\ \vdots \\ (a_{P1} \ a_{P2} \ \dots \ a_{Pr} \ a_{P1}^* \ a_{P2}^* \ \dots \ a_{Pr}^*)^T \end{pmatrix} \quad (25)$$

$$\beta = \begin{pmatrix} (b_0 \ b_{12} \ \dots \ b_r \ b_1^* \ b_{12}^* \ \dots \ b_r^*)^T \\ \vdots \\ (b_{21} \ b_{22} \ \dots \ b_{2r} \ b_{21}^* \ b_{22}^* \ \dots \ b_{2r}^*)^T \end{pmatrix} \quad (26)$$





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And define the matrices:

$$\hat{\Phi}_1(t) = \begin{pmatrix} \Phi^T(t) & 0 \\ 0 & \Phi^T(t) \end{pmatrix}, \hat{\Phi}_2(t) = \begin{pmatrix} \Phi^T(t) & 0 \\ 0 & \Phi^T(t) \end{pmatrix} \quad (27)$$

Note that α, β and $\hat{\Phi}_1(t)$ and $\hat{\Phi}_2(t)$ are matrices of order $P(2r+1) \times 1, Z(2r+1) \times 1$ and $P \times P(2r+1)$ and $Z \times Z(2r+1)$ respectively. Using equation (15) and (16) and (25)-(27) the state and control vector can be expressed as

$$x(t) = \hat{\Phi}_1(t)\alpha \quad (28)$$

$$u(t) = \hat{\Phi}_2(t)\beta \quad (29)$$

Substituting equation (28) and (29) in equation (14) we get

$$J = \frac{1}{2} \alpha^T \hat{\Phi}^T(L) S \hat{\Phi}(L) \alpha + \frac{1}{2} \alpha^T \left[\int_0^L \hat{\Phi}^T(t) Q \hat{\Phi}(t) dt \right] \alpha \quad (30)$$

$$+ \frac{1}{2} \beta^T \left[\int_0^L \hat{\Phi}^T(t) R \hat{\Phi}(t) dt \right] \beta$$

Equation (30) can be computed more efficiently by using equation (10) and writing J as

$$J = \frac{1}{2} \alpha^T [\Phi(L)\Phi^T(L) \otimes S] \alpha + \frac{1}{2} \alpha^T (D \otimes Q) \alpha + \frac{1}{2} \beta^T (D \otimes R) \beta \quad (31)$$

Where \otimes denotes the Kronecker product .

CONCLUSION

The Fourier series and the associated matrix of integration (operational matrix) are applied to solve the optimal control of singular systems. The method is based upon reducing a linear singular quadratic optimization problem to a set of algebraic equations. The advantage of using Fourier series as compared to Laguerre polynomials, shifted Legendre polynomials and Chebyshev series is that in the present method the, most of the elements of the operational matrix given in (8) are zeros, and matrix D introduced in (10) is a diagonal matrix, hence making Fourier series computationally very attractive. As we can see from the tables, it is shown that with a relatively low r , we have a very accurate solution.

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Input-Output Selection for Chemical Process Based on Fundamental Limitations

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ABSTRACT

The control structure selection for an air separation plant is discussed using the robust performance number (RPN) as a controllability index. The RPN indicates how potentially difficult it is for a given system to achieve the desired performance robustly. It reflects both the attainable performance of a system and its degree of directionality. The predictions made by RPN are verified by closed loop simulations. The analysis was performed using a linear nominal model, but can be extended to include nonlinearities and uncertainties.

Key words: Controllability measures; Air separation plant; Control structure selection (CSS); Benchmark problem for CSS

INTRODUCTION

Quantitative controllability measures are key ingredients of a systematic control structure design (CSD) procedure. Many different aspects (e.g. model uncertainties, nonlinearity of the process, input saturation, interactions between the control loops) must be taken into account. In Trierweiler and Trierweiler and Engell the robust performance number (RPN) and the robust performance number with constant scaling (RPNLR) were introduced to characterize the controllability of a system. In this paper we apply these indices to the control structure selection (CSS for short) for an air separation plant.

The paper is structured as follows: the next section, the air separation plant is described. In the following section, the CSS is performed using RPN and RPNLR indices. Finally, the predictions are confirmed by closed loop simulations.





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Linde's heat integrated air separation plant

The concurrent production of argon is an important factor in the production of oxygen and nitrogen from air. The boiling points of nitrogen, oxygen, and argon are very close, those of oxygen and argon being the closest. Fig. 1 shows a typical air separation unit as it was developed by Linde. Air is fed into the high-pressure column (HPC) which operates at **5.9** bar. At the top of the HPC, part of the liquefied nitrogen is withdrawn for use as reflux in the low-pressure column (LPC), the remainder being returned as reflux to the HPC. A liquid nitrogen-oxygen mixture containing about **38%** of O_2 is collected in the bottom of the HPC. Part of the HPC bottom stream is fed to the LPC while the remainder goes as coolant to the crude argon column (the 1st argon column). The evaporation chamber of the crude argon condenser is connected to the LPC the operating pressure of which is **1.42** bar. The 1st argon column is connected to the LPC at a suitable point known as the argon side stream level.

Mainly due to the difficulties of separating oxygen and argon by distillation, the production of pure argon is divided into three steps. In the first step, the O_2 concentration is reduced over the height of the 1st argon column from about **90% O_2** to **2% O_2** during the second step the crude argon is warmed to ambient temperature, the residual O_2 is burned out by addition of H_2 . The third and final step involves the separation of the N_2 residual in the **2nd** argon column. The three steps are schematically shown in Fig. 1 (see Rohde [6] for a detailed discussion).

The O_2 concentration is measured and controlled at three points as shown in Fig. 1: y_1 (middle of HPC), y_2 (sidestream of LPC), and y_3 (feed of 1st argon column). The possible manipulated variables are: u_1 (feed of HPC), u_2 (O_2 vapor product), u_3 (reflux of LPC), u_4 (air injection of LPC), u_5 (argon condenser rate), and u_6 (reflux of HPC). To control the system, we must choose 3 manipulated variables among the six possible manipulated variables to control the three O_2 -compositions.

There are 120 possible different pairings (for multi-SISO control) and **20 (6!/3!/3!)** combinations (for full feedback control). In the sequel, the pairing $(y_1, u_4, y_2, u_5, y_3, u_6)$ is denoted as ST_ABC, e.g. ST_642 means the $(y_1 - u_6, y_2 - u_5, y_3 - u_2)$ pairing. As suggested by Zapp [11], the three input variables not used for feedback control purposes are treated as disturbances. Perfect level and pressure control is assumed throughout this study.

The linear model used in this work was obtained by the identification of step responses of the nonlinear model for perfect level and pressure control. The nonlinear simulations were performed using optimis, an equation oriented steady-state and dynamic simulator developed by Linde [1,11]. Step responses from these simulations for small deviations from the normal operating point were provided by Linde as a basis for the analysis while the full nonlinear model was held confidential.

RPN - a criterion for control structure selection

The robust performance number (RPN) was introduced in Trierweiler [8] and Trierweiler and Engell [9] as a measure to characterize the controllability of a system. The RPN indicates how potentially difficult it is for a given system to achieve the desired performance robustly. The RPN is influenced both by the desired performance of a system and its degree of directionality.





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Definitions

The robust performance number (RPN, Γ) of a multivariable plant with transfer matrix $G(s)$ is defined as

$$RPN \triangleq \Gamma_{sup}(G, T, \omega) = \sup_{\omega} \{\Gamma(G, T)\}$$

$$\Gamma(G, T) \triangleq \sqrt{\bar{\sigma}([1 - T(j\omega)]T(j\omega)) \left(\gamma^*(G(j\omega)) + \frac{1}{\gamma^*(G(j\omega))} \right)}$$

Where $\gamma^*(G(j\omega))$ is the minimized condition number of $G(j\omega)$ and $\bar{\sigma}([1 - T(j\omega)]T(j\omega))$ is the maximal singular value of the transfer function $[I - T]T$. T is the (attainable) desired output complementary sensitivity function which is determined for the nominal model $G(s)$.

The RPN consists of two factors

$\bar{\sigma}([I - T]T)$. This term acts as a weighting function and emphasizes the more important region (i.e. the crossover frequency range) for robust stability and robust performance relative to the low and high frequency regions which are less important for feedback control. For example, a system can have large uncertainty at low frequencies, but nevertheless present no stability and performance problems. This fact is automatically taken into account by the function $\bar{\sigma}([I - T]T)$, which has its peak value in the crossover frequency range. The choice of T depends on the desired closed loop bandwidth, sensor noise, input constraints, and in particular on the nonminimum-phase part of G , i.e. RHP-zeros, RHP-poles, and pure time delays.

$\gamma^*(G) \mid 1/\gamma^*(G)$. The origin of this term is the result on the computation of the robust performance (RP) of inverse-based controllers [9].

The RPN is a measure of how potentially difficult it is for a given system to achieve the desired performance robustly. The easiest way to design a controller is to use the process inverse. An inverse-based controller will have potentially good performance robustness only when the RPN is small. As inverse-based controllers are simple and effective, it can be concluded that a good selection of the control structure is one with a small (<5) RPN.

The robust performance number with constant scalings (RPN_{LR}, Γ_{LR}) of a multivariable plant with transfer matrix $G.s$ is defined as

$$\gamma(j\omega) \triangleq \gamma(L_s G(j\omega) R_s)$$

$$\Gamma_{LR}(G) \triangleq \sqrt{\bar{\sigma}(L_s [I - T(j\omega)] T(j\omega) L_s^{-1}) \left(\gamma(j\omega) + \frac{1}{\gamma(j\omega)} \right)} \tag{2a}$$

$$RPN_{LR} \triangleq \sup_{\omega \in R} \{\Gamma_{LR}(G)\} \tag{2b}$$





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Where L_c and R_c are fixed scaling matrices corresponding to the scaling matrices that make $\gamma(L_c G(j\omega) R_c)$ minimal. $\sup_{\omega \in \mathbb{R}}$ is frequency where $\Gamma(G, T)$ achieves its maximum value.

Attainable performance

In this section, it is discussed how the attainable closed loop performance can be characterized for systems with RHP-zeros.

Specification of the desired performance

We specify the desired performance by the (output) complementary sensitivity function T which relates to the reference signal r and the output signal y in the 1degree of freedom (DOF) control configuration (see Fig. 2). For the SISO case, specifications as e.g. settling time, rise time, maximal overshoot, and steady-state error can be mapped into the choice of a transfer function of the form

$$T_{d1} \triangleq \frac{1 - \epsilon_{ss}}{(s/\omega_n)^2 + 2\zeta s/\omega_n + 1} \tag{3}$$

Where ϵ_{ss} is the tolerated offset (steady-state error). The parameters ω_n (undamped natural frequency) and ζ (damping ratio) of (3) can be easily calculated from the time domain specifications.

For the MIMO case, a straightforward extension of such a specification is to prescribe a decoupled or almost decoupled response, with possibly different parameters for each output, i.e., $T_d = \text{diag}(T_{d,1}, \dots, T_{d,m})$, where each $T_{d,i}$ corresponds to a SISO time domain specification.

RHP-zero constraint and factorization

If $G(s)$ has a RHP-zero at z with output direction y_z then for internal stability of the feedback system the controller must not cancel the RHP-zero. Thus $T = GK$ must have also a RHP-zero in the same direction as G ,

i.e., $y_z^H G(z) = 0 \Rightarrow y_z^H G(z) K(z) = 0$. It follows from $T = LS$ that the interpolation constraints

$$y_z^H T(z) = 0; y_z^H S(z) = y_z^H \tag{4}$$

must be satisfied.

When the plant $G(s)$ is asymptotically stable and has at least as many inputs as outputs, $G(s)$ can be factored as $G(s) = B_{o,c}(s) G_m(s)$. The possible closed-loop transfer functions T can be then factored to satisfy the interpolation constraint (4) as





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$$T(s) = B_{o,z}(s)B_{o,z}^\dagger(0)T_d(s) \tag{5}$$

where $T_d(s)$ is the ideal desired closed-loop transfer function and $B_{o,z}(s)$ is the output Blaschke factorization for the zeros (for the definition of the Blaschke factorization and an algorithm to calculate it, see, e.g. Havre and Skogestad [5] or Trierweiler [8]). $B_{o,z}^\dagger$ denotes the pseudo-inverse of $B_{o,z}$ and $B_{o,z}(0)B_{o,z}^\dagger = I$. It is easy to verify that (5) implies (4).

$T(s)$ is different from the original desired transfer function $T_d(s)$, but has the same singular values. The factor $B_{o,z}^\dagger(0)$ ensures that $T(0) = T_d(0)$ so that the steady-state characteristics (usually $T_d(0) = I$) are preserved.

Calculation of RPN for the air separation unit

To calculate the RPN, it is necessary to specify the desired performance. Here a rise time of 3 min and 10% overshoot are used as desired performance for all outputs. These specifications are captured by

$$T_d = \frac{1}{2.2s^2 + 1.754s + 1} I_3 \tag{6}$$

The effect of the nonminimum phase behavior in each control structure is represented by the attainable desired output complementary sensitivity function which is calculated from (5).

Table 1 shows the values of RPN and the RHP-zeros for some of the analyzed structures. In this table, the control structures ST_142, ST_642, and ST_635 have the best RPN values (i.e. the smallest RPN). Structures as ST_632 and ST_132 with large RPN values are not considered in the following analysis. The RPN-values of the control structures ST_143 and ST_643 (not shown here) are very similar to ST_142 and ST_642, respectively. Therefore, the results presented and the comments for ST_142 and ST_642 are also valid for ST_143 and ST_643.

Fig. 3 shows the minimized condition number of ST_142, ST_642, and ST_635. Note that the directionality (i.e. $\gamma^*(G(j\omega))$) of ST_142 and ST_642 becomes similar to ST_635 in the middle and high frequency range. In the low frequency range, ST_142 and ST_642 have high directionality. It is preferable to use feedback in a region with low directionality, since the input uncertainty can then be ignored and an inverse-based controller can be applied successfully. For the air separation plant, the possible closed loop bandwidth is mainly limited by the RHP-zeros.

Fig. 4 shows the RPN-plot for ST_142, ST_642, and ST_635. Observe that the RPN-plot for ST_635 and 3min rise time has broad maximum which is caused by the RHP-zero at 0.1081 (cf. Table 1). As the RHP-zero limits the bandwidth which can be achieved without sensitivity problems, we reduced the desired performance of ST_635 to 10 min rise time and 10% overshoot, the corresponding transfer function is

$$T_d = \frac{1}{2.2s^2 + 1.754s + 1} I_3$$





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Fig. 4 shows that with this new desired performance the RPN-plot of ST_635 has a "normal" shape. Both the peak RPN value and the full RPN-plot should be analyzed. Good RPN-curves are those with a single narrow peak. Note that the RPN analysis takes the effect of nonminimum-phase behavior and the frequency dependent directionality of the system into account simultaneously. For the control structures ST_132 and ST_632 the RHP-zeros close to the origin (cf. Table 1) do not allow to make the closed-loop system to be fast enough to avoid the region of strong directionality, therefore the corresponding peak RPN values are large.

Usually one is interested in using simple low-order controllers. When the system's directionality varies strongly with the frequency, a higher order controller must be used. To determine how strong this dependence is, we use the RPNLR-plot. Small differences between RPNLR-and RPN-plots indicate that a low order controller will probably produce good results. The crossover frequency range (i.e. the region of the RPN-peak) is especially important in this analysis. Fig. 5 shows the RPNLR-plots of ST_142, ST_642, and ST_635.

From this figure, it can be concluded that the control structure ST_142 will achieve good performance with a low order controller. For ST_635 the design of a low order controller is much more difficult. The peak RPN values of ST_142 and ST_642 are similar, but the RPN and RPNLR-plots show differences mainly at low frequencies (cf. Fig. 5). This is a consequence of the RHP zero of ST_642, which makes the RPN- and RPNLR plots differ more at low frequencies. Thus, for ST_642, the controller order necessary to achieve an equivalent performance must be higher. Therefore, it can be concluded that for ST_642 the design of a low-order controller will be more difficult than for ST_142. It means, that if one has a good process model and is willing to use a higher order controller, ST_642 could be used without severe problems. Of course, since the difference between ST_142 and ST_642 is not too pronounced, both structures should be included in a simulation-based analysis using the nonlinear model. This, however, is beyond the scope of this paper.

Verification of the predictions by closed loop simulations

The controllers used in the simulations of Fig. 6 were obtained by applying the frequency response approximation method developed by Engell and Müller to the optimally RPN-scaled system (see Trierweiler [8] for details). The desired closed-loop response used in the controller design is the same as the one used in the RPN-calculation, i.e. for the control structures ST_142 and ST_642 rise times of 3 min and 10% overshoot were used and for ST_635, a rise time of 10 min and 10% overshoot were specified. The simulations confirm the predictions made by RPN and RPNLR. For ST_635, to improve the dynamic performance it is necessary to increase the controller order to compensate the frequency dependence directionality. The control structure ST_142 also achieves very good results with a decentralized PID controller (cf. Fig. 7).

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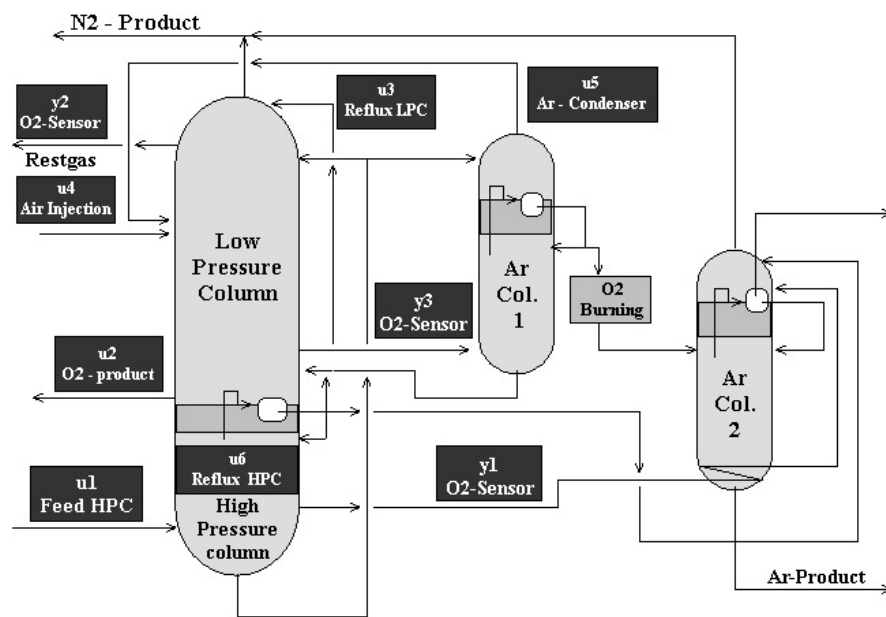


Fig. 1. Air separation unit.

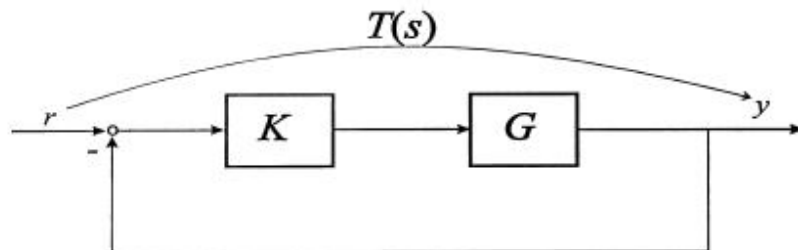


Fig.2. standard feedback configuration





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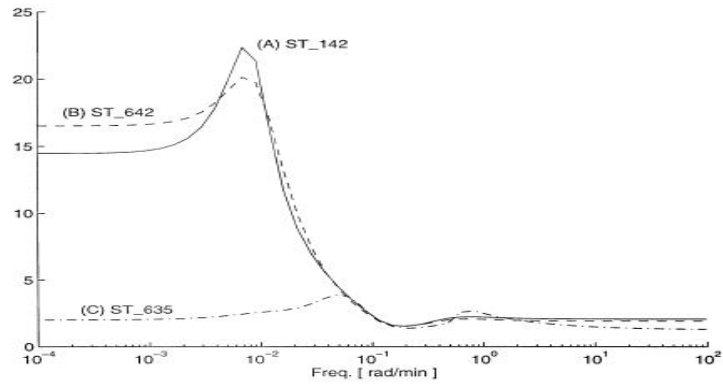


Fig. 3. Minimized condition numbers of the control structures ST_142, ST_642, and ST_635.

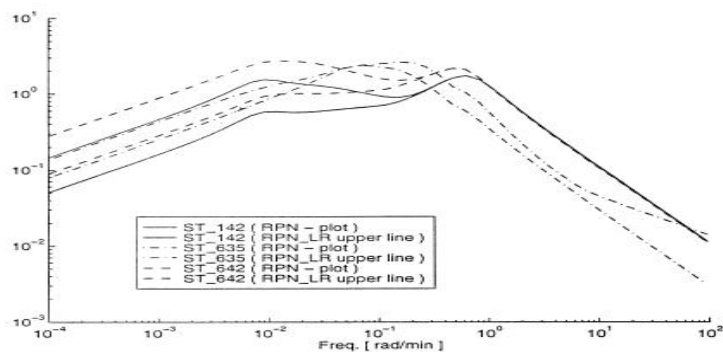


Fig. 4. RPN-plots of the control structures ST_142, ST_642, and ST_635 calculated for rise times of 3 min and 10% overshoot. The RPN-plot of ST_635 was also calculated using a rise time of 10 min and 10% overshoot.

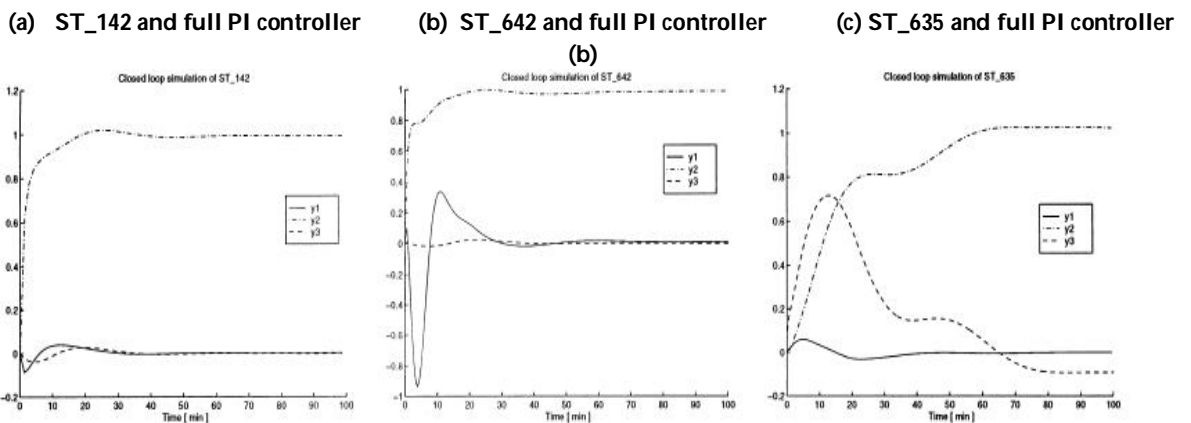


Fig.5. Responses to a set point step change in y_2 .





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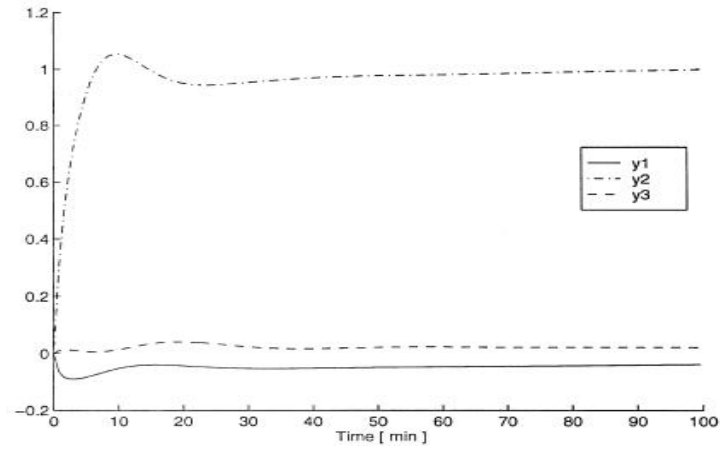


Fig.6.Response to a set point in y_2 for ST_142 and a decentralized PID controller

| Table 1 | | | |
|----------------------------|-----------|------------|----------------------------|
| RPN and RHP-zero(s) | | | |
| | CS | RPN | RHP- zero |
| (A) | ST_142 | 1.7 | - |
| (B) | ST_642 | 2.2 | 0.66 |
| (C) | ST_635 | 2.4 | 0.1081, 0.66 |
| (D) | ST_632 | 6.3 | 0.025, 0.027 ± 0.13j, 0.66 |
| (E) | ST_132 | 6.7 | 0.0244, 0.025 ± 0.12j |





STATCOM based on Genetic Algorithm Optimization for Reducing Power Losses in Transmission Lines

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ABSTRACT

Power systems deteriorate with time as load grows and generation is added. The transmission system is also usually subjected to a number of steady state and transient problems. This leads to voltage instability and increased system losses. This paper proposes application of STATCOM to extend steady-state voltage stability margin and reducing losses in electric power systems using an optimal LQR based genetic algorithm. The results obtained from the incorporation of proposed control strategy into the grid system were satisfactory. The voltage magnitudes at buses of system were sufficiently improved to maintain it at or above 1.0 pu with STATCOM. The active power and reactive power losses also reduced when STATCOM was applied into the grid system.

Key words: STATCOM, Genetic Algorithm, LQR Control, Voltage Stability, Reducing Losses.

INTRODUCTION

An AC power system is a complex network of synchronous generators, transmission lines and loads. Each transmission line can be represented as a reactive ladder network composed of series inductors and shunt capacitors. The total series inductance which is proportional to the length of the line, at a given voltage determines the maximum transmittable power. The shunt capacitance influences the voltage profile along the transmission line [1-3]. The transmitted power over a given line is determined by the line impedance, the magnitude and phase angle between the end voltages. Considering economic, social and legislative development, Electric Power Research Institute formulated the vision of Flexible AC Transmission System (FACTS) in which various power electronic based controllers regulate the power flow and transmission voltage through rapid control action. The main objectives of FACTS are to increase the useable transmission capacity of lines and control power flow over designated





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transmission routes. Facts technology is not a single high power controller but rather a collection of controllers that can be applied individually or collectively to control interrelated parameters. Static synchronous compensator (STATCOM) is one of the most important FACTS devices which is used in power system for many purpose like: regulating of power flows in prescribed transmission routes, prevention of cascading outages by contributing to emergency control, secure loading of lines near their thermal limits and damping of oscillations which can threaten security or limit the usable line capacity and improve system stability in general. The STATCOM can either absorb or supply reactive power whose capacitive or inductive output current can be controlled independent of the ac line voltage as indicated in the static characteristic in Fig. 1, 2, line voltage versus reactive current. The STATCOM is a static synchronous generator that generates a synchronous three-phase alternative voltage with the mains voltage from a direct voltage source. The amplitude of the voltage of STATCOM may be controlled to adjust the quantity of reactive power to share with the network. In general, the voltage of STATCOM V_{sh} is injected in phase with the line voltage V_c and in this case there is no exchange of energy with the active network, but only reactive power to be injected (or absorbed) by the STATCOM as summarized in Figure.1.C.

The reactive power exchange with the network is done by varying the amplitude of the output voltages. Depending on the amplitude of these tensions, the three following operating systems are available for the STATCOM. The basic principle of operation for a STATCOM is explained with the help of Figure 2. The output voltage of the GTO converter (V_{sh}) is controlled in phase with the system voltage (V_c), as shown in this figure, and the output current of the STATCOM (I_q) varies depending on V_{sh} [17-18]. If:

1. $V_c < V_{sh}$: The phase angle of I_q is leading with respect to the phase angle of V_c by 90 degrees. As a result, leading reactive power flows from the D-STATCOM (capacitive mode).
2. $V_c > V_{sh}$: The phase angle of I_q is lagging with respect to V_c by 90 degrees; the D-STATCOM consumes reactive power flows and then an inductive mode.
3. $V_c = V_{sh}$: Then no reactive power is delivered to the power system.

As a result, lagging reactive power flows into the STATCOM (inductive mode). The amount of the reactive power is proportional to the voltage difference between V_c and V_{sh} . Note that this is the same basic operating principal as a rotating synchronous condenser.

Because of STATCOM characteristic and specification, this paper proposed an optimal control strategy based on linear quadratic regulator (LQR) that could be effective for reducing power losses and improving voltage stability in a power system [19-20].

System Description and PI Control Realization

The STATCOM control block diagram is shown in Figur.3. There are two control loops in the whole system. In the outer control loop, DC bus voltage and reactive power are measured and compared with the reference values. From the errors, d and q axis currents are commanded by the V_{dc} and Q controllers. The inner current loop is a fast-response loop. It takes the current command and generates appropriate firing pulses to achieve requested bridge-side voltage V_{dq} .





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Figure 3 illustrates the actual detailed control block diagram. It shows that the outer control loop for the DC bus voltage (V_{dc}) and reactive power (Q) are totally decoupled (i.e., i_{sd} corresponds to V_{dc} and i_{sq} corresponds to Q) which is due to the abc / dq transformation.

System Description and Proposed Optimal Control Strategy

Equations (2) to (4) give the mathematical expression of the STATCOM shown in Fig 5. One convenient way for studying balanced three-phasesystem (especially in synchronous machine problems) is to convert the three phase voltages and currents into synchronous rotating frame by abc/ dq transformation. The benefits of such arrangement are: the control problem is greatly simplified because the system variables become DC values under balanced condition; multiple control variables are decoupled so that the use of classic control method is possible, and even more physical meaning for each control variable can be acquired.

$$\frac{di_{sd}}{dt} = -\frac{R}{L}i_{sd} + \omega i_{sq} + \frac{1}{L}(V_{td} - V_{sd}) \tag{1}$$

$$\frac{di_{sq}}{dt} = -\omega i_{sd} - \frac{R}{L}i_{sq} + \frac{1}{L}(V_{tq} - V_{sq}) \tag{2}$$

$$\frac{dV_{dc}}{dt} = -\frac{3(V_{td}i_{sd} + V_{tq}i_{sq})}{2C_s V_{dc}} \tag{3}$$

Optimal control deals with the problem of finding a control law for a given system such that a certain optimality criterion (performance index) is achieved. The system which is the end result of an optimal design is not supposed merely to satisfy some of the constraints associated with the classical control (stability, bandwidth...) but it is supposed to be the best possible system of a particular type. The linear quadratic regulator (LQR) is a special case of optimal control problem that can be analytically solved, which arises when the objective (cost) function is a quadratic function of state x and input and u , and a LTI state equation is considered. Given a linear system $\dot{X}(t) = AX(t) + BU(t), y(t) = CX(t)$ where $X(t)$ are the system's states ($X = \begin{bmatrix} i_{sd} \\ i_{sq} \end{bmatrix}$), $U(t)$ is the system input ($U = \begin{bmatrix} v_{td} & v_{sd} \\ v_{tq} & v_{sq} \end{bmatrix}$) and $y(t)$ is the output ($y = \begin{bmatrix} i_{sd} \\ i_{sq} \end{bmatrix}$)). The quadratic performance index to minimize is:

$$J = 0.5 \int_{t_0}^{t_f} [X^T(t)QX(t) + U^T(t)RU(t)] dt + 0.5X^T(t_f)SX(t_f) \tag{4}$$

Thus, the loss function and the terminal cost function can be expressed as quadratic forms:

$$L(x, u) = 0.5(X^T(t)QX(t) + U^T(t)RU(t)) \tag{5}$$

It is in general assumed that the weighting matrices Q, R and S are symmetric, with Q and S positive semi definite and R positive definite. Under the stated conditions, it can be demonstrated that the optimal control law can be expressed as a linear state feedback: $U(t) = -K(t)X(t)$ where the time-varying feedback gain matrix is given





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by: $K(t) = R^{-1}B^T P(t)$ and $P(t)$ is the solution of the differential Riccati equation: $-\dot{P}(t) = A^T P(t) + P(t)A - P(t)BR^{-1}B^T P(t) + Q$ with boundary condition $P(t_f) = S$.

Considering deviation of current components from their references as error and trying to minimize these, proposed controller for STATCOM can be shown by Fig.6.

To place the closed loop poles of system under study to the desired region in the complex plane and to achieve satisfactory performance, one way is to find the Q and R matrices by an iterative method. Common practice is to choose the diagonal Q and R matrices. However, for a high order system, the number of Q and R elements is high, and finding the best weighting matrices by trial and error to achieve a desired transient performance is troublesome. In this paper, a Genetic Algorithm (GA) is used in order to obtain elements of Q and R matrices to achieve the satisfactory closed loop poles via LQR controller. Let us consider the diagonal Q and R matrices as: $Q = \text{diag}\{q_1, \dots, q_n\}$, $R = \text{diag}\{r_1, \dots, r_m\}$. The chromosome structure used by the GA in this search procedure is presented in Fig. 7. This structure is composed of a set of eight elements where the first six are correspond to the Q matrix, and the last two are related to the R matrix. The searching procedure for the GA technique is summarized as follows.

Step 1 Initialization: Start the process by randomly generating individuals of the initial population, which each individual is a candidate solution of the problem.

Step 2 Evaluation: Calculate the fitness value of each individual in the generation. The fitness value of individuals is given by: $F = \max\{\text{real}(\lambda_i)\}$, $i = 1, \dots, n$, where F is the fitness value and λ_i is are the eigenvalues of the closed loop system. In optimization the aim is to minimize F in order to shift all the eigenvalues as far to the left of the left hand side of the complex plane as possible.

Step 3 New generation: provide a new generation through application of genetic operators like crossover and mutation in the search space of the optimal solution.

Step 4 Stopping criteria: Calculate the value of the fitness function for each generation to evaluate whether the GA is converging to an optimal solution. The optimization process is over until a convergence criterion is reached, or the desired number of generations is accomplished. If the convergence criterion is not satisfied, the iterative process returns to step 3.

Simulation Results

For testing proposed strategy based on STATCOM, system which is shown in Fig.8 is used. Load changing are according table.1:

Simulation is done based on deviation in loads. STATCOM must obtain requested reactive power to compensate voltage and reduce losses. Flowing of reactive power along the transmission line is not permitted by control circuit of STATCOM thus capacity of lines is released and losses is decreased. For comparison purposes, results of proposed LQR-GA strategy is compared with classic SATTCOM based PI controller. From Fig.9 – Fig.16 it can be seen that LQR based GA has better response in voltage regulation and reducing exchanged reactive power which is caused more losses in system.





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CONCLUSION

This paper proposed an optimal control strategy based on linear quadratic regulator (LQR) that could be effective for reducing power losses and improving voltage stability in a power system. Results which are obtained by MATLAB software show effectiveness of proposed strategy.

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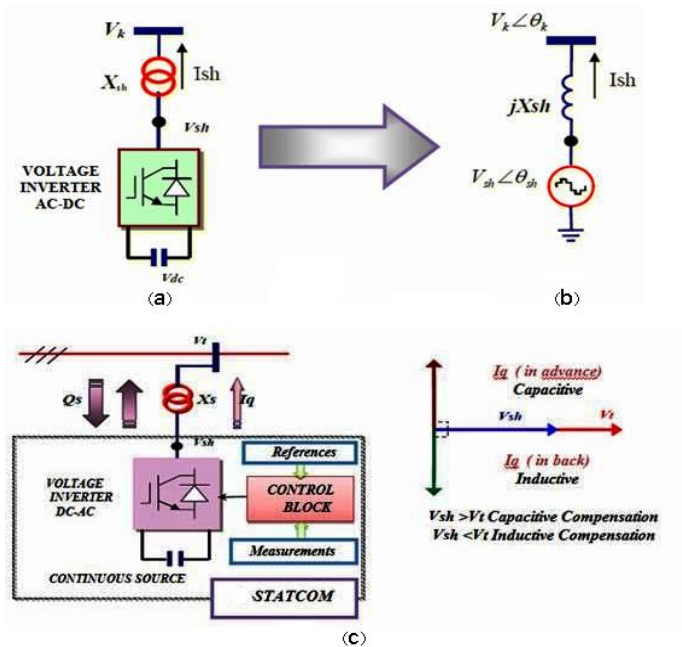


Fig.1 Structure of a STATCOM and Equivalent circuit

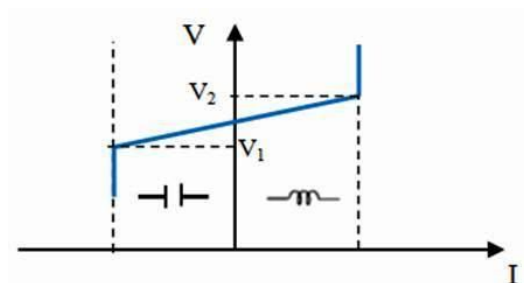


Fig.2 Characteristic of STATCOM





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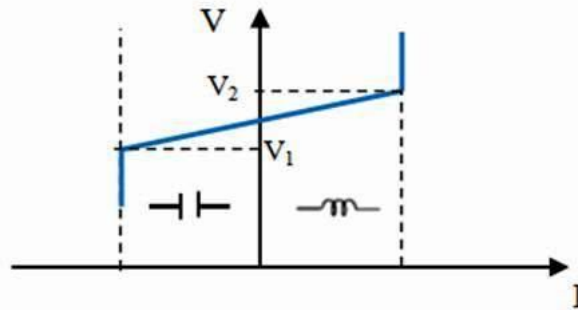


Fig.3Characteristic of STATCOM

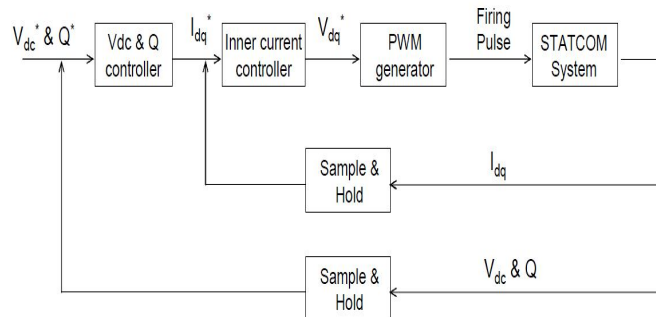


Fig.4STATCOM Control System

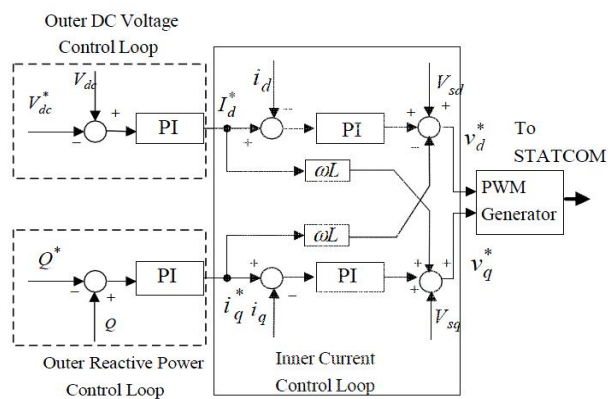


Fig.5Detailed PI based Control Block diagram of the STATCOM Control





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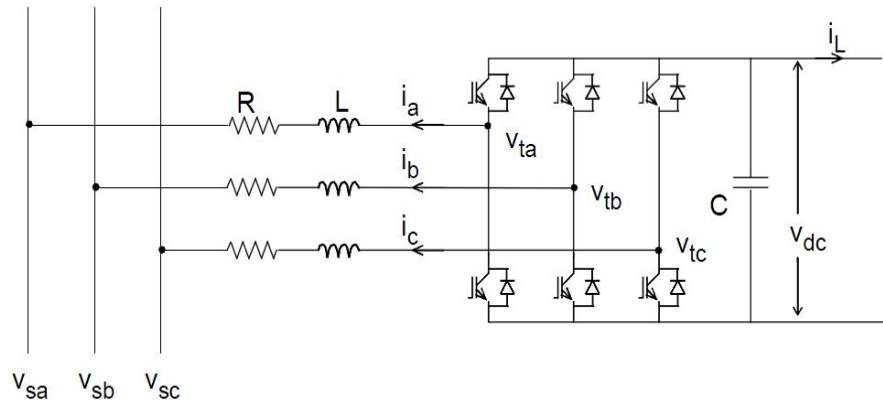


Fig.6 STATCOM System Configuration

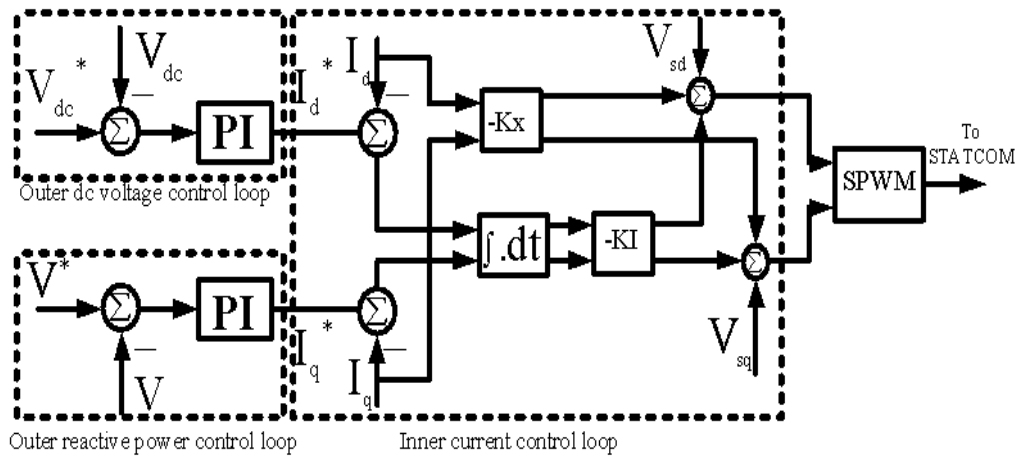


Figure.7 Proposed Control Strategy based Optimal LQR Controller

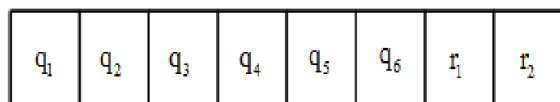


Fig.8 Chromosome structure





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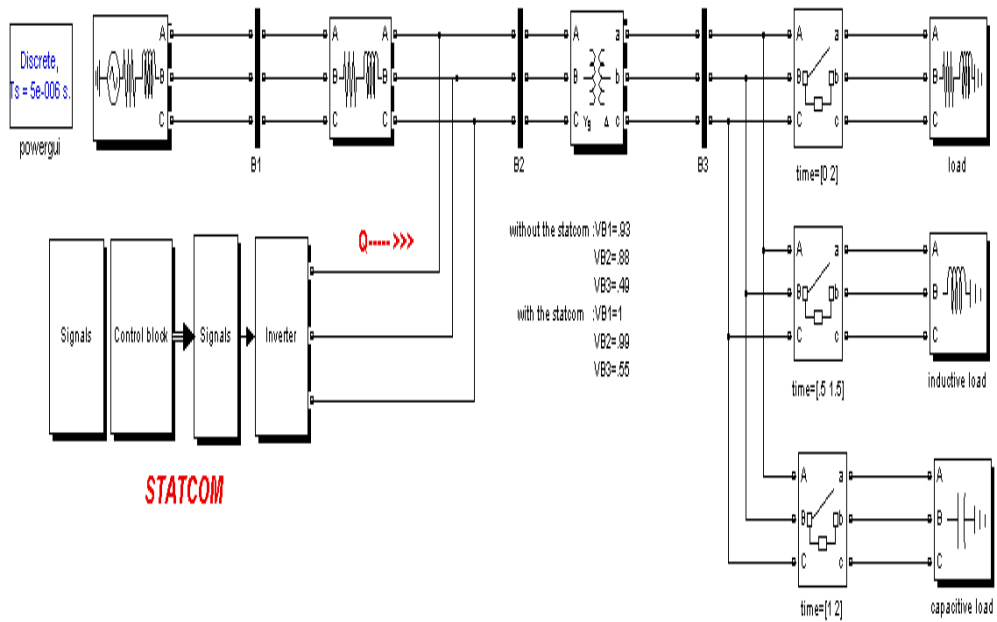


Fig.9 System Under Study for Testify Proposed Control Strategy

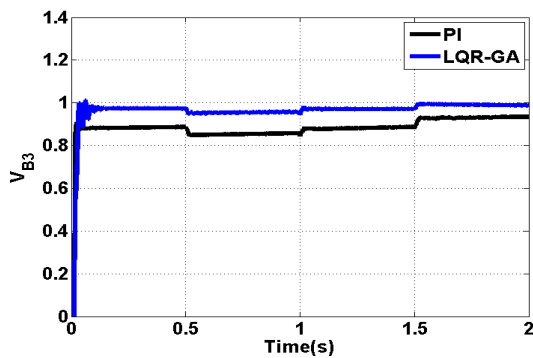


Fig. 10 Voltage Magnitude of Bus B3

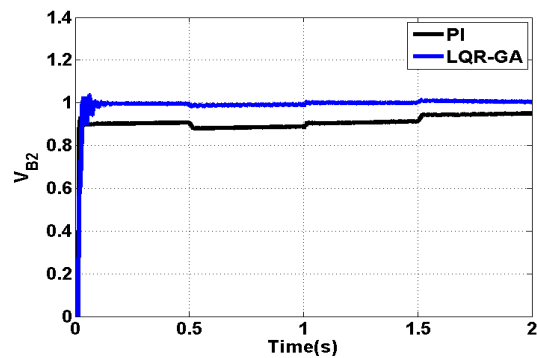


Fig. 11 Voltage Magnitude of Bus B2





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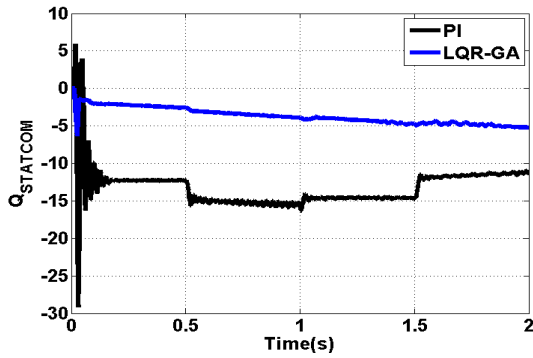


Fig. 12 Reactive Power by STATCOM

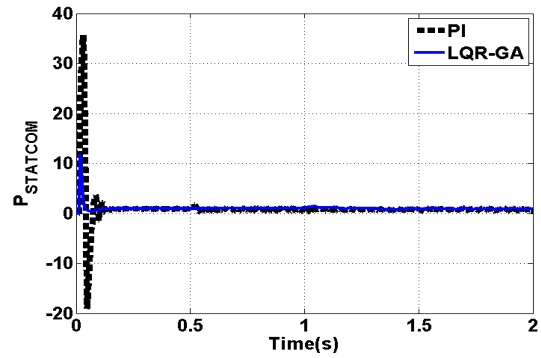


Fig. 13 Active Power Losses in STATCOM

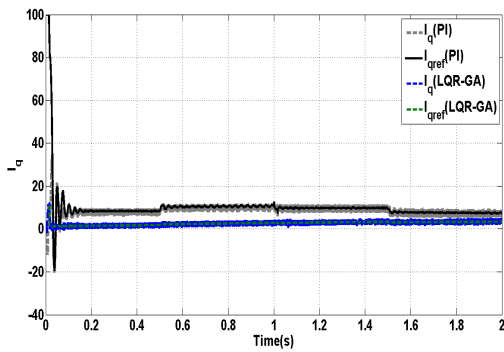


Fig. 14 Reactive Current Components

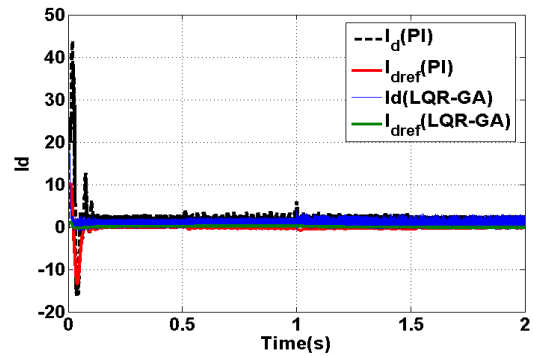


Fig. 15 Active Current Components

Table 1: System Load Condition

| Time | Load |
|-----------|--------------------------|
| [0-2] | Inductive(200MW,360MVAR) |
| [0.5-1.5] | Pure Inductive(300MVAR) |
| [1-2] | Pure Capacitive(150MVAR) |





RESEARCH ARTICLE

Evaluating the Role of Municipalities in Development of Rural Industries with a Focus on Sustainable Development through Fuzzy Techniques

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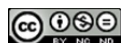
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ABSTRACT

The main purpose of this research is to evaluate the role of municipalities in development of rural industries with a focus on sustainable development. The sample of the research is consisted of 320 respondents randomly selected from four different villages. Two of the villages had a municipality and two of them lacked it. From each village, eighty questionnaires were collected and analyzed. For data analysis, a questionnaire made by the researcher was used. For determining the validity of data collection instruments, the questionnaires were checked by professors of management field. Also the Cronbach's alpha coefficient was used for determination of the reliability of questionnaires. The Cronbach's alpha coefficient of the research questionnaire was calculated as 0.91 which indicates a desirable reliability of the questionnaires. For testing the hypotheses, the two sided t test was used. Findings indicated that municipalities have a significant effect on attracting governmental investments, attracting private investments, supplication of raw material and creation of consumption market for development of rural industries. Also the results showed that municipalities of sample villages have potentially made efforts towards optimization of rural structures. This is while according to findings, municipalities did not have a positive performance regarding creating infrastructural facilities for development of rural industries and possibly, they did not have the ability of accomplishing such infrastructures.

Key words: municipality, attracting governmental investments, attracting private investments, creating infrastructural facilities, supplication of raw material, creating consumption market





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INTRODUCTION

One of the main focuses in analysis of rural issues is paying attention to structure of management in these societies (Taleb, 1993). A village is considered as a country's smallest social and political unit and it is inevitable that this unit cannot be needless of organizational management as a result of existence of social and economic relations and individual's commitment to common and civil laws. Establishment of municipalities in villages could be considered as a milestone in the history of rural management. With the establishment of municipalities, in addition to councils as policy makers for rural construction programs, the executive management of village's affairs is also assigned to municipalities (IMO, 2004).

During the past few decades, the villages of our country had lots of vulnerabilities in terms of economic bases; it was thought that with industrial growth of large cities, rural areas will also develop but increased unemployment, increased poverty and creation of income gaps between peasant and urban areas reveal the fact that development of peasant areas cannot be obtained without contraption and only through market mechanisms. Undoubtedly, industrialization is a part of development's integrated strategy and it must be emphasized that limitations and inequalities of growth market are absolute necessities of obtaining social goals and opposing unemployment (Safari Ali Akbari et al. 2012). Industrialization of rural areas for creation of income creating activities and employment opportunities is known as a strategy for reduction of inequality in poor rural areas. Results of experiences of past three decades in some Asian countries (China and India) indicate that small peasant industries can play a crucial role in the process of rural development. Also Iran as a developing country should develop its rural industries for its structural reinforcement because growth of industries is important in development of rural areas and balance between urban and rural areas and development and growth of agriculture, increased income and welfare level for villagers, reduction in the process of rural-urban emigration and optimized application of existing resources are the resultants of this type of development (Rezvani et al. 2011). Results of different researches indicate the importance of municipalities and rural industries. For example, results of research conducted by Askari et al. (2012) revealed that rural industries feature a desirable economy and the attraction of capital inputs in all groups of rural industries was more than work force and raw material. Their results indicated that development of rural industries requires further investments. Results of digital taxonomy indicated that the efficiency of food industries had the first rank among the eight groups of rural industries. Also Farahani et al. (2013) conducted a research aimed at discussing and evaluating the role of municipalities on the quality of villager's lives in Karsef Village located in Khodabande. 8 indexes of education, environment, social and economic support networks, health and security, residential environment, infrastructures and leisure time were discussed and evaluated. According to the results, seven of the eight aforementioned indexes showed a significant difference between villages which had a municipality and villages which lacked it and only in terms of leisure times, there was no difference between these two types of villages. Results of research conducted by Anabestani et al. (2014) revealed that there was a significant relation between village's local managers and indexes such as level of public collaboration, participation of municipals in training courses, location and etc.

Municipalities take care of public services and affairs as non-governmental public organizations which are in charge of local affairs with presence of villagers through Islamic councils. On one hand, municipality's desirable performance means a good planning for villages, organization of developmental actions and coordination of actions in a way that village's sustainable development process is empowered in way that it leads to creation of an appropriate environment for a more comfortable and more efficient life relative to social and economic characteristics of our country's villages which consist approximately 31% of the total population. Rural development includes different aspects of development in most constructive, economic, social, natural, agricultural, humane, and touristic, tourist attraction, environment and infrastructural facilities. Now, through the identification and application of different aspects of current performance of new local managements, and currently in villages there could be steps taken towards realization of rural development and ultimately rural sustainable development. Therefore, the basic



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orientation of this research is to answer this question: what is the role of municipality in development of rural industries?

Methods

In terms of purpose, the present research is an applicable research and in terms of data collection methods, it's a descriptive-survey study and also in terms of data analysis, it's a casual-comparative paper. The population of research includes the entire villages of the city of Miandoab which are categorized in two categories of villages with municipality and villages which lack a municipality. For selecting the sample population in each village, the simple-random sampling method is used and the sufficiency of sample size is also calculated via the Cochran's formula. The sample includes 320 respondents randomly selected from four different villages. Two villages had a municipality and two other lacked it. 80 questionnaires were collected and analyzed in each village. For the purpose of data collection, a researcher made questionnaire was used. In the present research, for the purpose of determining the validity of data collection instruments, the questionnaires were checked by some of management professors. Also the Cronbach's alpha coefficient was used for determining the reliability of questionnaires which was calculated as 0.91 and this value indicates a desirable reliability for questionnaires. For data analysis, the two-sided t test is used.

Investigating the normality of research variables

In the present research, the Kolmogorov-Smirnoff test is used for investigation of normality of data and also the normality of variables is discussed through this test. Results of the aforementioned statistical test are shown in table 2.

RESULTS

Demographic findings of research sample are shown in table 1.

With respect to the resultant significance values of Kolmogorov-Smirnoff test for research variables which is higher than 0.05. Therefore, the values of aforementioned variables are under a rather normal distribution. On this basis, parametric tests could be used for analysis of research hypotheses and in this regard, the t test is used for comparison between two sample populations. The results of analyses of research hypotheses are mentioned in the following.

First hypothesis: Municipalities of Miandoab's villages play a significant role in attraction of governmental investments for development of rural industries

Results of comparison test shows that the mean value of attraction of governmental investments in the category of villages with a municipality is 0.1265 higher than the category of villages which lacked a municipality; also the significance level of t statistic of the tests is less than 0.05 which indicates the significance of difference between two samples. These findings show that the attraction of governmental investments is significantly higher in villages with a municipality. On this basis the first research hypothesis is accepted with the assurance level of 95 percent.

Second hypothesis: Municipalities of Miandoab's villages play a significant role in attraction of private investments for development of rural industries

Results of comparison test shows that the mean value of attraction of private investments in the category of villages with a municipality is 0.548 higher than the category of villages which lacked a municipality; also the significance level of t statistic of the tests is less than 0.05 which indicates the significance of difference between two samples.





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These findings show that the attraction of private investments is significantly higher in villages with a municipality. On this basis the second research hypothesis is accepted with the assurance level of 95 percent.

Third hypothesis : Municipalities of Miandoab's villages play a significant role in creating infrastructural facilities for development of rural industries

Results of comparison test shows that the mean value of creating infrastructural facilities in the category of villages with a municipality is -.0372 units less than the category of villages which lacked a municipality; also the significance level of t statistic of the tests is less than 0.05 which indicates the significance of difference between two samples. These findings show that creating infrastructural facilities is significantly higher in villages with a municipality. On this basis the third research hypothesis is accepted with the assurance level of 95 percent.

Fourth hypothesis: Municipalities of Miandoab's villages play a significant role in supplication of raw material for development of rural industries

Results of comparison test shows that the mean value of supplication of raw material in the category of villages with a municipality is 0.54 units higher than the category of villages which lacked a municipality; also the significance level of t statistic of the tests is less than 0.05 which indicates the significance of difference between two samples. These findings show that supplication of raw material is significantly higher in villages with a municipality. On this basis the fourth research hypothesis is accepted with the assurance level of 95 percent.

Fifth hypothesis : Municipalities of Miandoab's villages play a significant role in creation of consumption markets for development of rural industries

Results of comparison test shows that the mean value of creation of consumption markets in the category of villages with a municipality is 0.589 units higher than the category of villages which lacked a municipality; also the significance level of t statistic of the tests is less than 0.05 which indicates the significance of difference between two samples. These findings show that creation of consumption markets is significantly higher in villages with a municipality. On this basis the fifth research hypothesis is accepted with the assurance level of 95 percent.

DISCUSSION AND CONCLUSIONS

Findings of the first hypothesis test showed that municipalities of villages of Maindoab play a significant role in attraction of governmental investments for development of rural industries. According to this finding, the value of attracting the governmental investments was significantly higher in villages which had a municipality in comparison with villages which lacked it. The findings of the first hypothesis are consistent with the findings of Farahani and Rostamkhani (2012). These researchers indicated that in villages which had a municipality, the indexes of education, environment, social and economic support networks, health and security, residential environment and infrastructures are higher than villages which lack a municipality. It seems that the municipalities of Miandoab's villages have been performing effectively in the domain of attraction of governmental financial resources for development of rural industries. Such a performance can potentially be a result of inviting authorities to villages and also handling of villager's demands by the governmental organizations.

Findings of the second hypothesis test showed that municipalities of villages of Maindoab play a significant role in attraction of private investments for development of rural industries. According to this finding, the value of attracting the private investments was significantly higher in villages which had a municipality in comparison with villages which lacked it. This finding could be attributed to existence of potential opportunities for investment in



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villages and private investor's orientation towards these opportunities. In this regard, Askari et al. (2012) conducted a research and in that research they reasoned that development of rural industries is considered as one of the most important rural development policies of the country. In this regard, identification of the status of industries' efficiency can play a significant and effective role in improvement of efficiency especially in a situation in which the country is faced with limitation of producers. In this paper, our country's rural industries are discussed through statistics and questionnaire information in terms of different indexes of efficiency and further, they are ranked through the numerical (digital) taxonomy method. Results indicate that rural industries have a desirable economy and the attraction of investment in all groups of rural industries was higher than raw material and work force. Results of numerical taxonomy indicate that the efficiency of food industries had the first rank among the eight groups of rural industries and therefore, it may be inferred that the orientation of private section for investment in rural areas could be a result of some of advantages of investments of this kind and possibly the role of municipality in these villages is to introduce these facilities.

Findings of the third hypothesis showed that Municipalities of villages of Miandoab did not play a significant role in creating infrastructural facilities for development of rural industries. These findings are inconsistent with the findings of Farahani et al. (2013) and Anabestani et al. (2014). These researchers showed the potential role of municipalities in improvement of different aspects of quality of life in villages and found significant results. It seems that municipality's lack of affection in creation of infrastructural facilities is because of the fact that the required infrastructural facilities for industries are important in terms of total cost and the municipality, as a small managerial structure did not have the ability to be influential in this domain.

Results of the fourth hypothesis showed that the municipalities of villages of Miandoab play a significant role in supplication of raw material for development of rural industries. According to these findings, the value of supplication of raw material for development of rural industries was significantly higher in villages which had a municipality compared to village which lacked it. These findings are consistent with the findings of Anabestani et al. (2014). These researches also have proved the effective implementation of municipalities in supplication of some of villager's requirements. It seems that in the view of respondents, municipalities are able to play a significant and effective role as a main effective element on supplication of raw material for active rural industries.

Results of the fourth hypothesis showed that the municipalities of villages of Miandoab play a significant role in creation of consumption markets for development of rural industries. This finding is consistent with claim of the fifth hypothesis and shows that the municipality is able to act as an element of attracting customers for rural products. Specially, such a performance can be realized in the light of two main activities in this domain. First, municipalities are able to implement their communicative instruments and persuade the people of other villages to purchase their products and second, with respect to the fact that municipality is a governmental entity and therefore possesses a special reputation among the society, it can introduce the products of its village to urban areas.

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Table 1-Distribution of sample in terms of gender, education and domain of activity

| percentage | number | categorization | criteria |
|------------|--------|------------------------------|-----------|
| %72/5 | 232 | male | gender |
| %27/5 | 88 | female | |
| %100 | 320 | total | |
| %47/1 | 151 | Diploma and under Diploma | education |
| %17/5 | 55 | Semi B.A | |
| %27/5 | 88 | B.A | |
| %8 | 26 | M.A and higher | |
| %100 | 320 | total | |
| %48/6 | 137 | agriculture | career |
| %26/5 | 85 | livestock | |
| %8 | 28 | administrative | |
| %17/5 | 56 | Market | |
| %4/3 | 14 | other | |
| %100 | 320 | total | |

Table 2, normality test for research variables

| Kolmogorov-Smirnoff test | | | variable |
|--------------------------|----------------|-----------|-------------------------------------|
| significance | Freedom degree | statistic | |
| .101 | 320 | .060 | Attracting governmental investments |
| .128 | 320 | .089 | Attracting private investments |
| .140 | 320 | .076 | Infrastructural facilities |
| .158 | 320 | .067 | Supplication of raw material |
| .183 | 320 | .023 | Consumption market |





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Table 3, results of analysis of the first hypothesis

| Studied index: attraction of governmental investments for development of rural industries | | | | | | | |
|---|-------------|---|-------------|-----------------|--------|------------------------|------------|
| Comparison test | | Levine's test for equality of variances | | Mean difference | mean | Number of observations | population |
| significance)P-value(| T statistic | significance)P-value(| F statistic | | | | |
| 0/011 | 2/573 | 0/523 | 0/409 | 0/1265 | 3/9516 | 160 | μ_1 |
| | | | | | 3/825 | 160 | μ_2 |

Table 4, results of analysis of the second hypothesis

| Studied index: attraction of private investments for development of rural industries | | | | | | | |
|--|-------------|---|-------------|-----------------|-------|------------------------|------------|
| Comparison test | | Levine's test for equality of variances | | Mean difference | mean | Number of observations | population |
| significance)P-value(| T statistic | significance)P-value(| F statistic | | | | |
| 0/000 | 9.306 | 0/712 | 0/137 | 0/548 | 3.425 | 160 | μ_1 |
| | | | | | 2.876 | 160 | μ_2 |

Table 5, results of analysis of the third hypothesis

| Studied index: creating infrastructural facilities for development of rural industries | | | | | | | |
|--|-------------|---|-------------|-----------------|-------|------------------------|------------|
| Comparison test | | Levine's test for equality of variances | | Mean difference | mean | Number of observations | population |
| significance)P-value(| T statistic | significance)P-value(| F statistic | | | | |
| 0/000 | -11.183 | .1140 | 1.159 | -0.372 | 3.025 | 160 | μ_1 |
| | | | | | 3.397 | 160 | μ_2 |





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Table 6, results of analysis of the fourth hypothesis

| Studied index supplication of raw material for development of rural industries | | | | | | | |
|--|-------------|---|-------------|-----------------|-------|------------------------|------------|
| Comparison test | | Levine's test for equality of variances | | Mean difference | mean | Number of observations | population |
| significance)P-value(| T statistic | significance)P-value(| F statistic | | | | |
| 0/000 | 6.644 | 0.887 | 0.02 | 0.540 | 3.975 | 160 | μ_1 |
| | | | | | 3.434 | 160 | μ_2 |

Table7, results of analysis of the fifth hypothesis

| Studied index: creation of consumption markets for development of rural industries | | | | | | | |
|--|-------------|---|-------------|-----------------|-------|------------------------|------------|
| Comparison test | | Levine's test for equality of variances | | Mean difference | mean | Number of observations | population |
| significance)P-value(| T statistic | significance)P-value(| F statistic | | | | |
| 0/000 | 10.617 | 0.446 | 0.582 | 0.589 | 3.635 | 160 | μ_1 |
| | | | | | 3.045 | 160 | μ_2 |





RESEARCH ARTICLE

Analyzing the Effect of Spraying Vermiwash on the Yield and Some Germination Indices of Wheat Seed Pre-treated by Vermicompost

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ABSTRACT

In order to evaluate the effect of spraying vermicompost extract, vermicompost fertilizer nutrition, chemical fertilizer, integrated fertilizer and pre-treatment of the seed on the performance, wheat seed yield and some germination indices a factorial experiment was conducted based on randomized complete block design at four replications in agricultural year 2013-2014 in Saatlui research station and Agricultural and Natural Resources Research Center of Urmia. The first factor included pre-treatment of the seed with 3 levels: control (previously untreated seeds) and pre-treatment of the seeds with 1/1 and 1/2 vermiwash, the second factor included: fertilization (b) the use of soil in 4 levels: lack of using fertilizer (control), use of chemical fertilizer, use of vermicompost organic fertilizer and integrated application of chemical and vermicompost fertilizers and the third factor included: Foliar spray at 4 levels: no spraying (control), Spraying with 5 per thousand urea solution, spraying with 1/1 and 1/2 vermiwash. The results of analysis of variance showed that the effect of spraying, fertilizing and priming the seeds and their interaction had significant effects on the percentage of germination, seed yield, biological yield, harvest index and yield components such as height plant, grain weight, panicle length, grain number and percentage of nitrogen and protein in the seed. The treatment used for the pre-treated seed with 1/2 vermiwash in the integrated fertilizer as well as foliar spray of vermicompost twice a day during the plant reproduction had a positive effect on the germination and increased the performance of the seed and its components in wheat.

Key words: pre-treatment of seeds, germination, yield, dry farming wheat, vermicompost



**Mahmoud Pooryousef Miandoab and Roya Arjomandi Akram****INTRODUCTION**

In Iran based on the area of dry land in which cultivated wheat is the main product, determining the most appropriate type of dry cultivation and the most appropriate method of cultivating wheat is of great priority. Treated Azar wheat which is one of the domestic varieties and in terms of cultivation characteristics is a mid-autumn crop wheat, relatively early, resistant to collapse and susceptible to rust. The technology that could provide the initial advent, deployment and sustainability of the wheat crop so that it could use higher soil moisture, nutrients and solar radiation is called pre-treatment (Eivazi and Tajoddini Koukia, 2009). One of the pretreatment methods is priming the seed. Seed priming is one of the simple methods that improve the power and the establishment of seedlings and the yield of plants in the farms (Tejari et al, 2011). In this method the seeds are immersed in a special solution (or water) in a certain time depending on the type of seed and solution. The positive effect of this work is reported as the faster appearance of radicle, deeper roots in the soil, faster ripening and high yield in wheat, rice, peas and corn (Nouri et al, 2010). Vermicompost fertilizer is created by feeding the earthworms at room temperature. A study has reported that in plants such as spinach, tomatoes, turnips, potatoes, cabbage, carrots, red beets, celery, lentils, lettuce, peppers, potatoes and pears grown in vermicompost, the amount of vitamin C was significantly higher. Vermicompost in tomato plant leads to significant increase in antioxidant content, the whole content, carotene, iron (Fe), zinc (Zn), crude fiber and lycopene content compared to another organic tomato. Also vermicompost increases the shelf life of tomatoes at room temperature significantly (Rajiv et al., 2013). The studies conducted on some plants such as sunflower (*Helianthus annuus* L.) vermicompost can reduce the harmful effects of salinity and increase its growth and production; the biomass of the Tamarind (*Tamarindus indica* L.) in the presence of vermicompost was increased four times (Oliva et al., 2008). The macro, micro and humic elements in vermicompost stimulate plant growth more than feeding the plant with mineral fertilizers and their extracts leads to early and improved flowering and Sinha et al., 2010; Gamaley et al, 2001).

Repeated and gentle passage of organic materials through the digestive system of earthworms and immersed with secretions of the digestive system, such as particles of calcium, enzymes, mucus and different metabolic materials and finally appropriate conditions for the synthesis of humic acid produces a mixture the physical and chemical properties of which are completely different from the raw material and it is regulated by acidity in terms of quality and contains a variety of vitamins, growth hormones humic substances and nutrients available for plants. In particular conditions the microorganisms that decomposing organic materials make polymers that lead to the formation of oil, coal and humic materials (Patil et al., 2010). Vermicompost because of having humic acid could have a positive effect on germination. Humic acid in vermicompost improves average germination and the seed vigor and improved germination percentage in wheat. It increases root length in wheat (Hassan et al., 2014; Atiyeh et al., 2002a). Patil et al (2010) believed that plants treated with potassium Hume had a better growth than the control plant. The factors between of earthworms and microorganisms can produce significant amounts of plant growth hormones and humic acids that act as regulators of plant (Hassanzadeh Qorut Tappeh, Qolinezhad, 2014).

Production of vermiwash

There are various methods to produce vermicompost extract. In all these methods following extracting, the soluble mineral nutrients, beneficial microorganisms, humic acids and folic acids, hormones and plant growth regulators enter the extract from the vermicompost (Greytak et al., 2006). Vermiwashcompounds are affected by conditions of production and storage. During the production of process extract is identified and introduced to have major importance (Fritz2012.). These materials are important factors for the growth of the plant. Vermiwashis obtained by vermicompost mixed with water with the ratio of ½ and stored in room temperature for 24 hours; the obtained mixture should be filtered by a (Whatman No. 2) paper filter (Johann et al., 2006). The use of vermiwash produced by organic vermicompost fertilizer can increase the yield of the plant that has macronutrients and micronutrients (Manyuchi et al., 2013). Induced lateral root growth in the plant *Arabidopsis* is caused by activation of the



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transcription of auxin response genes (Trevisan et al., 2010). Similarly some studies have shown that how vermicompost or its extract can modify the bed and how foliar spray can promote the growth of plants such as tomatoes, Strawberries (Tejada et al., 2008), Sorghum (Sing et al., 2010; Gutiérrez et al., 2008).

Greytak et al (2006) stated that Vermiwash had positive microbial and chemical characteristics similar to solid Vermicompost. Vermiwash is brown latex produced during vermicomposting which is rich in macro elements and micronutrients (Manyuchi et al, 2013). Vermiwash has high foliar absorption capacity and it is a natural antibiotic and fungicide (Hassanzadeh Qorut Tappeh, Qolinezhad, 2014). There are different methods to produce vermiwash. One of these methods is the extract obtained by placing the compost in bag sacks in barrels of water which is remained in this condition for 7-14 days (Javanmardi, 2010). In all of these methods during extracting the soluble nutrient mineral and beneficial microorganisms, humic acids and folic acids, hormones and plant growth regulators of the vermicompost enter the water (Atiyeh et al., 2002a). These materials are critical factors for a better growth of the plants (Greytak et al., 2006). A study demonstrated that foliar spray of the vermiwash obtained by urban solid waste and other plant bio-pesticide increased brinjal plants' significant growth. Panet et al (2009) stated that vermiwash increases plant yield and the mineral materials in the plant significantly.

METHODS

Location of the test

The test was conducted in autumn 2013 in Saatlui research station and Agricultural and Natural Resources Research Center of Urmia at N45°27'E37 °43'87" and 1329 meters above sea level with a warm and dry climate with a maximum temperature of 39 ° C in summer and minimum temperature -17.8 ° C in winter and average annual rainfall of 30.04 mm with dry farming of wheat of Azar type 2. Characteristics of the soil used in the pots was measured under the table (3-1) and it was found that the soil was heavy, rich in potassium and had balanced phosphorus but it lacked nitrogen.

Agricultural Operations

Wheat was cultivated in the middle of November. The wheat seeds were pretreated before being cultivated by 1:1 and 1:2 vermiwash and planted in the pots at the same time with untreated seeds and the soil of the pots were mixed with chemical or organic fertilizers, or both of them based on the Soil and Water Research Institute based on soil testing in terms of the treatments. The test was conducted under three factors of pre-treating the seed at three levels: control (previously untreated seeds) and pre-treatment of the seeds with 1/1 and ½ vermiwash, fertilization the use of soil in 4 levels: lack of using fertilizer (control), use of chemical fertilizer, use of vermicompost organic fertilizer and integrated application of chemical and vermicompost fertilizers and the third factor included: Foliar spray at 4 levels: no spraying (control), Spraying with 5 per thousand urea solution, spraying with 1/1 and ½ vermiwash which was in 48 treatments and 4 replications in the form of factorial experiment based on randomized complete block design in 192 pots.

Density of the seeds in each pot was 20 which is equivalent to 200kg per hectare. The use of chemical fertilizer in the related treatments is based on the soil test results. The vermicompost used based on the percentage of NPK nutrients in compost fertilizer and soil test results. In order to determine the physical and chemical properties of the soil of the area under study, the required samples were taken from depths of 0 to 30 cm and the required measurements were performed in soil and water laboratory.

Vermiwash concentrations used for seed priming factor based on preliminary test results were determined before the test. The preliminary testing of seed priming with concentrations of 1: 1 and 1: 2 of vermiwash without significant



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difference had the most influence on seed germination in Petri dishes. Therefore in this test the same concentrations were selected for the pretreatment of wheat seed and preparing the vermowash first a specific amount of vermicompost are weighted using the same scale and the same amount and the amount equal to twice their weight distilled water was added and stirred for 24 hours, then the resulting mixture was filtered and the extracts were used based on each treatment both for the pretreatments of the seed and foliar treatments during the heading and grain filling stages in their pots.

The data related to the growing period were obtained based on observation and counting germinated seeds in each pot. During the growing season weeding was performed manually to combat weeds and during the growth period no spraying was performed. Cultivation was performed in 1.7.2014. Finally the yield and parts of the yield (ear length, grain panicle and grain weight), biomass and harvest index (ratio of yield to biological yield) were calculated.

Germination Percentage

Germinated seeds in each pot were counted on the tenth day (FGP) and their average was noted (Tajbakhsh and Qiasi, 2012).

Test data were analyzed statistically using computer software MSTATC and SAS based on test factor and the treatments were compared based on Duncan's multiple range test. The figures were plotted by Excel Software.

RESULTS AND DISCUSSION**Germination percentage**

The results of variance analysis of the obtained data showed that the effect of pre-treatment of seeds and fertilizing was significant at 1% level and the effect of fertilizing was significant on germination at 5% but the integration of pre-treatment of seeds and fertilizing was no significant.

The results of comparing the means as shown in Figure (1) indicate that pre-treatment of seeds with the diluted and concentrated vermicompost solution has a positive effect on germination compared to the control. As the highest germination belongs to the pretreatment of vermiwash 1:2 and the lowest germination belongs to the control. According to research conducted by previous researchers mentioned in the second chapter of this thesis, this result can be due to the existence of growth stimulating elements such as Humic acid in the extract of vermicompost. Humic acid as an organic acid speeds up the germination of wheat without negative environmental impact (Sabzevari et al., 2010).

According to figure (2) the highest germination is related to the treatments with integrated fertilization and the lowest germination is related to control (no fertilization).

CONCLUSION

Based on the presented arguments it can be seen that priming the seed and the soil by the fertilizers either organic, chemical or integrated form increase germination.

The use of diluted and concentrated organic vermicompost and chemical and organic fertilizers both individually or in combination stimulate seed germination and plant growth.





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In terms of seed yield and yield components, the integrated use of fertilizers in the soil, pre-treating the seed with vermiwash, spraying diluted vermiwash and urea increase the yield of the seed.

Treatment of pre-treated seeds with diluted vermiwash (1:2) with the integrated use of organic and chemical fertilizers in the soil by spraying a dilute extract of vermicompost have the highest yield for the farmer.

The most appropriate treatment without the risk of nitrate accumulation is the use of pre-treated seeds with dilute extract of vermicompost along with the use of organic and chemical fertilizers in the integrated form before the cultivation and applying spraying with dilute extract of vermicompost during the production period of the plant.

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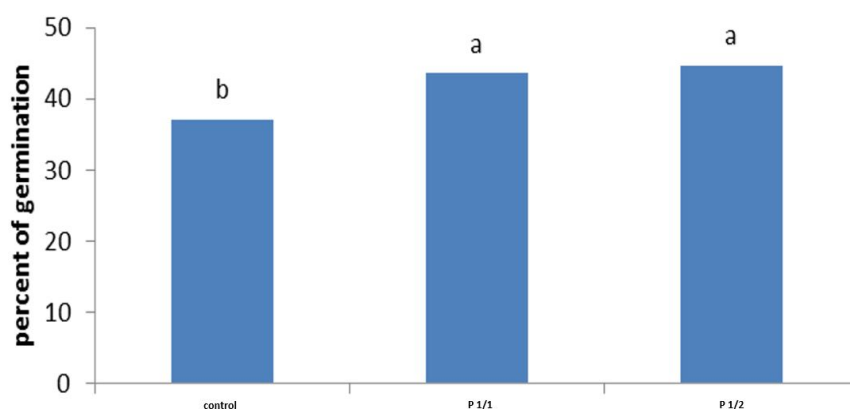


Figure (1) comparing the mean seed priming factor versus germination Priming 1/1 and 2/1 = 1/1 soaking seed in 1:1 and 1:2 vermi wash In each column the treatments have at least one shared letter have no significant differences with Duncan test





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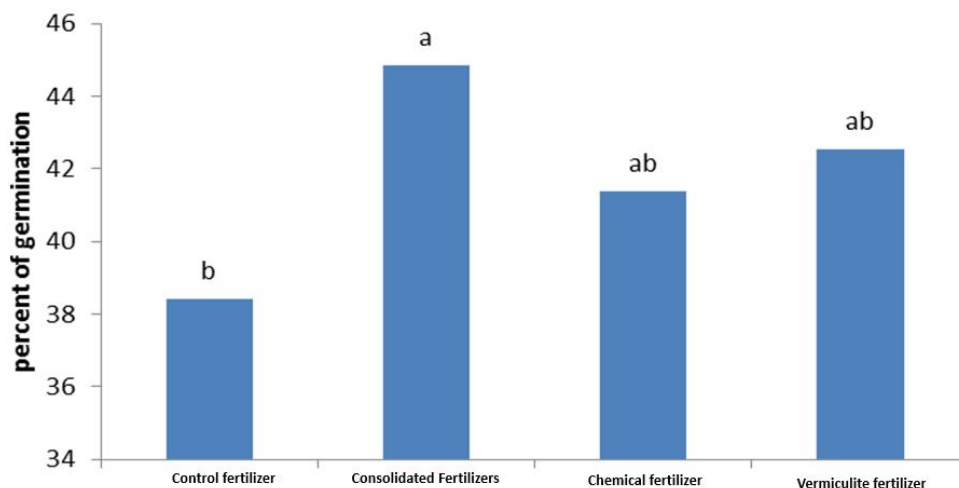


Figure (2) Comparing the implemented fertilization versus germination

Chemical fertilizer= 15 kg/ Ha triple phosphate fertilizer+ 75 kg/ Ha urea (three times)

Integrated fertilizer= 15 kg/ Ha triple phosphate fertilizer+ 75 kg/ Ha urea(three times) + vermicompost fertilizer

In each column the treatments have at least one shared letter have no significant differences with Duncan test

Table (1): chemical and physical properties of the soil of the test

| Potassium K | Phosphorus P | Nitrogen N | Organic carbon oc | Soil textu- re Class | Salin- ity Ec | Sand | Silt | clay | TNV | Saturat ion (Sp) | (pH) |
|----------------|-----------------|---------------|-------------------------|-------------------------------|---------------------|-------|-------|-------|---------|------------------------|----------------|
| ppm | | % | | | ds / m | % | | | | - | |
| 465 | 1.13 | 09.0 | 88.0 | Clay | 45.0 | 20 | 33 | 47 | 8.34 | 47 | 97.7 |
| - | - | - | - | Loa my - clay | Less than 2 | 30-40 | 30-40 | 20-30 | 10 less | 40 | Desirable - |

Table (2): Analysis of vermicompost organic fertilizer

| Specifications | Fe | Zn | Cu | Mn | Ca | Mg |
|----------------|---------|-------|-------|--------|------|------|
| | Mg / kg | | | | | |
| Compost | 2851 | 43/46 | 46/51 | 71/179 | 73/2 | 46/0 |





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Table (3): Analysis of vermicompost organic fertilizer

| Specifications | Ashe | N | P | K | pH | Ec |
|----------------|------|------|------|------|------|---------------|
| | % | | | | | Dilution of 5 |
| Compost | 4/59 | 10.3 | 27/0 | 19/0 | 62/6 | 52/8 |

Table 4: variance analysis of wheat germination under the influence of priming with vermiwash and vermicompost and chemical fertilization

| Sources of change | Degree of freedom | Mean-square |
|---|-------------------|-------------|
| | | Germination |
| Block | 3 | * 945/124 |
| The seed treatment (a) | 2 | ** 003/271 |
| Fertilization (b) | 3 | * 572/85 |
| Fertilization (b) × The seed pretreatment (a) | 6 | ns 859/2 |
| Error | 33 | 664/33 |
| Coefficient of Variation% | - | 88/13 |

** , * , ns refers to level of significance at 1%, 5% and non- significance





Emanation of Koran in Sadie's Works

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ABSTRACT

Persian poets and writers have implemented Koranic concepts and verses in their works in different ways and Koranic views had significant influence on their works. Sheikh Ajal Sadie Shirazi is also one of the poets who has made several implementations of this divine book in his work as a result of his perfect familiarity with Koran and has been able to present his discourse in a better and more pleasing way. In this research project we have discussed some of Sadie's works including Majales Khamseh, Boostan, Golestan, Arabic and Persian odes in addition to his couplets and we have also investigated the effects of Koran in these works. Sadie's methods of discourse are discussable in several ways. He has used several types of influences such as adaptation, allusions, points and resolution. These influences in Boostan, Golestan, Persian and Arabic odes and couplets in the context of praise of God have benefited from moral and Islamic points and applicable results in life. Boostan is the idealistic world of Sadie and we can see the influences of Koran in this work more than any other of his works; Golestan is the realistic world of Sadie. In this research we have tried to answer the following questions: 1-What are Sadie's technics for expression of Koranic concepts? 2- In which works of Sadie there are more emanations of Koran? The method of the present research is descriptive-analytic and among the works of Sadie, The Golestan, The Boostan, The Majales Khamseh, the Couplets and Persian and Arabic Odes are discussed and scrutinized. First the poems in which there were emanations of Koran were extracted; in the next step the extracted poems were analyzed.

INTRODUCTION

Persian poets and writers have implemented Koranic concepts and verses in their works in different ways and Koranic views had significant influence on their works. In this era, every belletrist had an amazing persuasive power for expression of his or her purposes and the influence of his words on the listener and Sadie, the popular poet of the





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7th AH century, is one of the most influential poets of Persian literature. In Persian literature history, Sadie is known as a great poet and a capable writer and also a wise scholar and belletrist. His thousands of stanzas of poems in terms of odes and sonnets and quatrains and two books of Golestan and Boostan are enough to provide an author with such a status. He is a poet who has implemented Koranic methods such as resolution, allusions, derivation and hints.

Research Hypotheses

Sadie has used adoption, allusions, resolution and hints for Koranic concepts.
Sadie has incorporated influences of Koran in Boostan more than his other works.

Biography of Sadie

Abu-Muhammad Moshref-eddin Maslah Ibn-Abdullah Ibn-Moshref Sadie Shirazi (National UNESCO commission, 1995: 181-3 -194) is undoubtedly one of the greatest poets who has enlightened the skies of Persian literature with his bright light and this lighting was accompanied by such a great power that still, after seven centuries, its influences have not declined. As Sadie himself has mentioned in Golestan, he was born in 606 A.H. at the onset of Golestan he says "one night I was wondering about the past days and regretting my wasted life and while doing so, I wrote these stanzas for my status":

| | |
|------------------------------|---------------------------|
| هر دم از عمر می رود نفسی | چون نگه می کنم نمانده بسی |
| ای که پنجاه رفت و در خوابی | مگر این پنج روزه در یابی |
| خجل آن کس که رفت و کار نساخت | کوس رحلت زدند و بار نساخت |

As the poet himself has mentioned, these stanzas are related to his mood while he regretted his wasted and lost life and point to his fifties. The following two stanzas are also stated at the onset of Golestan regarding the date of compilation of the book:

| | |
|---------------------------------|------------------------------|
| در این مدت که ما را وقت خوش بود | ز هجرت ششصد و پنجاه و شش بود |
| مراد ما نصیحت بود و گفتیم | حوالت با خدا کردیم و رفتیم |

If we compare these lines with each other, we conclude that in the year 656 A.H about fifty years of Sadie's life had been passed and in this regard, as it was mentioned before, his date of birth returns to 606 A.H or a time close to this year. In Shiraz, Sadie was born among a family of scholars. Dolatshah writes that it's been said that his father was Malazem Atabak. By this he was referring to Atabak Saad-Ibn Zangi. Sadie was subjected to his father's trainings since his childhood and was guided and advices by him but a few years later his father passed away and it seems that after that, he lived with his mother's father Masood-Ibn Mosleh Farsi and in that time, he learned the basics of literary and legal sciences in Shiraz and afterwards, went to Bagdad to continue his studying (Zarinkoob, 1999: 15). This journey was the start of Sadie's other long journeys and it seems that it had taken place approximately in 620-621 A.H, since he points to his time of entrance and exit from Fars in a chaotic world:

| | |
|---------------------------------|--------------------------------|
| برون رفتیم از تنگ ترکان چو دیدم | جهان در هم افتاده چون موی زنگی |
|---------------------------------|--------------------------------|

This visual reference is compatible with the harsh situation that was dominant in Shiraz after the raid of Sultan Ghiaseddin Pirshah to Shiraz after Sultan Muhammad Kharazmshah. After this date, Sadie spent some time in Bagdad and continued his studying in Bagdad's popular school and it was in this city that he met Jamaledin





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Abulfaraj Abdulrahman, also known as Almohtasab, the son of Yahyebn Yusuf-Ibn Jamaledin Abdulrahman Ibn Aljazri who was killed by Holakoo at the time of fall of Bagdad (656 A.H). Sadie, has mentioned this man as his trainer and a Sheikh. Abulfaraj Ibn Aljozi is the author of the famous book of Guile of the devil and the book of Almontazam (Zabih Allah, 1993). Among other Sheikhs and trainers of Sadie, we can refer to Shahabeddin Abu Alhafz Omar Ibn Muhammad Sohrevardi (passed away in 632 A.H). Henry Masse, the famous Iran expert from France writes in this regard: at the time of Sadie's inhabitancy in Bagdad, Shahabeddin Abu Alhafz Omar Ibn Muhammad Sohrevardi, the founder of the sect of Sohrevardiya in Mysticism was not only a master and scholar, but also was a famous man in terms of having his own literary school. In the only story written by Sadie regarding Sohrevardi, he has described him the same way (Masse, Mahdavi and Yusefi, 1984).

| | |
|------------------------------|------------------------------|
| نه از سعدی از سپهرودی شنو | مقامات مردان به مردی شنو |
| دو اندرز فرمود به روی آب | مرا شیخ دانای مرشد شهاب |
| دگر آنکه در نفس خود بین مباش | یکی آن که در جمع بد بین مباش |

The years that Sadie passed in Bagdad should be divided into his time of studying and learning from greatest instructors and Sheikhs of the time who lived in that city and hypnosis and repeating in Military schools (Katoozian, 2007: 76).

| | |
|----------------------------|-------------------------|
| شب و روز تلقین و تکرار بود | مرا در نظامیه ادرار بود |
|----------------------------|-------------------------|

And it seems that it was after these times that he started his long journeys in Hejaz, Sham and Lebanon and Rome and as he has mentioned, he travelled through the world and made acquaintances with different people and made several different experiences from everything.

| | |
|--------------------------|--------------------------|
| به سر بردم ایام با هرکسی | در اقصای عالم بگشتم بسی |
| ز هر خرمنی خوشه ای یافتم | تمتع به هر گوشه ای یافتم |

The journey that Sadie had started approximately in 620-621 A.H finished in 655 A.H when he returned to Shiraz. Different sources have mentioned the time of death of Sadie in 690, 691, 694 and 695 A.H (Mortezapoor, 1997: 43).

Derivation

Derivation is synonym to adaptation and quotation. When it is said that "Derived the fire from him" it is meant that the fire was adopted or taken from him and the expression of "Derived fire and knowledge from him" means that fire and knowledge were extracted from the subject. In terms of literature, adopting and extracting an intact verse from Koran or a Hadith from the prophet Muhammad in a way that it is obvious that the intention of the author was to express a verse or Hadith without any changes in its original Arabic form is called Derivation (Halabi, 2002: 59).

In this method, the same Koranic expressions are exactly reproduced with the same original structure without any changes and interruptions or with some small inevitable changes for adjustment of weights and rhymes. This type of utilization of Koran is done under different intentions including explaining, justifying, designing, documentation, manifestation of arts and etc.





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Like the following stanza from Sadie Shirazi

مرا شکیب نمی باشد ای مسلمانان ز روی خوب لکم دینکم و لی دینی

This stanza is a derivation of the sixth verse of the scripture of Kafaroon and means that your religion is yours and my religion is mine.

Resolution (analysis)

The word resolution means opening. In terms of scholars' expressions: implementation of expressions and scriptures and Hadiths in writings and sayings which are relieved of their original weight and expression for poetic purposes (Moazeni, 1997: 32).

Like the following stanza from Couplets

راست خوان، کژ خوانی ما را مبین کیف آسی قل لقوم ظالمین

(Refer to Molana's court of spiritual couplets)

In the second stanza, he has resolved the 93rd verse of Eraf and has made some changes to it. The original Verse was as follows:

«فکیف آسی علی قوم کافرین»:

Another example:

مکن هرگز بدو فعلی اضافت گر خرد داری جز ابداع یک مبدع کلمح العین او ادنی

(Refer to Nasser-Khosro's court)

Nasser-khosro has resolved the 77th verse of the scripture of Nahl. The original verse was as follows:

«ما امر الساعة الا کلمح البصر او هو اقرب»:

(Rastgoo, 2nd printing, 1998: 33)

Allusions

The word allusion means to look by the side of your eyesight (Moazeni, 1997: 30). Also in terms of literature, it means that the poet or the writer mentions a famous verse or Hadith for proving his expressions (Halabi, 1997: 30). For instance, you can refer to the following lines from Firdausi:

بیارای خوان و بییمای جام ز تیمار گیتی مبر هیچ نام
اگر چرخ گردان کشید زین تو سرانجام خشت است بالین تو
دلت را به تیمار چندین میند بس ایمن مشو بر سپهر بلند





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به گیتی نماند کسی جاویدان

همه مرگ را ایم پیر و جوان

(Refer to Firdausi's Shahnameh)

These lines have allusions to the 78th verse of the scripture of Nesa. In the definition of allusion, the expression of indication is extremely important because if the entire verse or hadith is conveyed, it cannot be regarded as allusion (Muhammadi, 1996: 7).

Difference between Derivation and Allusion

By taking a closer look at the aforementioned content, we can notice that in derivation, the entire or a part of the verse is brought to the poem. But in allusion, only a mentioning to the Hadith of verse of the interest is mentioned so that the mind of the reader is forced to endeavor in order to exploit the concept of the line.

Reflection of Koran in Sadie's Works

Sadie and taking advantage from Koran's verses

As an inspiring source, Koran has been the center of the attention of poets, scholars and belletrists such as Sheikh Ajal. The religious spirit of Sadie is evident in every work of him. He considers the psyche and religion as two inseparable components. As Sadie has sentenced, all Islamic laws are compatible with intellectual standards. Not only in the view of the God cruelty is bad and requires endless punishments, but also in this world it is considered as a bad trait and is followed up by undesirable consequences (Dashti, 1986: 280).

Sadie was a free man surrounded by a halo of faith. Religious beliefs constitute the basis of his intellectual movement and the context for his moral debates. He has brought religious basics in his poems in different ways and he himself also has obeyed them all and while doing so, he doesn't speak like hypocrites, he doesn't speak with varied accents, he has mixed morals and religions and has continuously considered for the health of the society. In his words, we can see no rage and no madness. He doesn't consider praying limited to the prayer carpet and the cassock but he considers serving people as praying (Dashti, 1986: 288).

Works of Sadie reveal that he has guaranteed the verses of Koran in a smart way and that he has mentioned the inner concepts of the verses of Koran without even bringing the main verse. His social view is the result of these Koranic tendencies and for guiding people, he also uses the same Koranic stories. He has expressed the relations between humans by taking advantage from the verses of Koran and through this way; he has depicted his ideal society.

In his works, Sadie has taken advantage from Koran and its influences in different ways but he has less frequently expressed his perceptions in the form of translation and interpretation; in a way that it was used by interpreters and mystics. The Sheikh Ajal had sometimes implemented Koranic verses in his lines in an artistic way and through this method, he provides the reader with the opportunity to have his or her own perception and comprehension. In addition, the reader is provided with necessary guidelines. Sometimes he uses allegory in his works. For example, regarding the concept of the 21st verse of the scripture of Zariat (وَفِي أَنْفُسِكُمْ أَفَلَا تُبْصِرُونَ) he uses such a beautiful allegory:

عمرها در پی مقصود به جان گردیدیم دوست در خانه ما گرد جهان گردیدیم

خود سرا پرده قدرش ز مکان بیرون بود آن که ما در طلبش جمله مکان گردیدیم





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(Forooghi, 1996: 620) Some of stories in Golestan and Boostan are related to the context of allegories and each of them is brought regarding the context of the definition of the verse which was related to the subject. The titles that Sadie has selected in Boostan include just, fear of god, piety, love and passion, generosity, satisfaction, citation, contentment, training, thanks giving, repenting, praying and chant. All of the aforementioned titles are major Koranic issues and in most cases, Sadie has used allegories for determination of general concepts of stories.

Sometimes we see that Sadie uses historical formats. Sadie has learned this method from the Koran; because Koran has expressed several laws of creation and the life of human among the life descriptions of prophets and nations.

When Sadie tries to advice a king and invite him to justice, he uses the concept of the 90th verse of the scripture of NahI (إِنَّ اللَّهَ يُأْمُرُ بِالْعَدْلِ وَالْإِحْسَانِ وَإِيتَاءِ ذِي الْقُرْبَىٰ وَيَنْهَىٰ عَنِ الْفَحْشَاءِ وَالْمُنْكَرِ وَالْبَغْيِ يَعِظُكُمْ لَعَلَّكُمْ تَذَكَّرُونَ) or the 58th verse of the scripture of Nesa (إِنَّ اللَّهَ يُأْمُرُكُمْ أَنْ تُؤَدُّوا الْأَمَانَاتِ إِلَىٰ أَهْلِهَا وَإِذَا حَكَمْتُمْ بَيْنَ النَّاسِ أَنْ تَحْكُمُوا بِالْعَدْلِ إِنَّ اللَّهَ نِعِمَّا يَعِظُكُمْ بِهِ إِنَّ اللَّهَ كَانَ سَمِيعًا بَصِيرًا). In some cases, Sadie takes advantage from the main texts of Koran for conveying his concepts. Like the Majles Khamseh in which he has brought tens of verses and sometimes, without mentioning the original text of a verse, he conveys its concept with such expertise that it seems that it was his own word. For instance, he expresses the definition of the 13th verse of the scripture of Hijrat (يَا أَيُّهَا النَّاسُ إِنَّا خَلَقْنَاكُمْ مِنْ ذَكَرٍ وَأُنْثَىٰ وَجَعَلْنَاكُمْ شُعُوبًا وَقَبَائِلَ لِتَعَارَفُوا إِنَّ أَكْرَمَكُمْ عِنْدَ اللَّهِ أَتْقَاكُمْ إِنَّ اللَّهَ عَلِيمٌ خَبِيرٌ) as follows:

بنی آدم اعضای یکدیگرند که در آفرینش ز یک گوهرند
چو عضوی به درد آورد روزگار دگر عضوها را نماند قرار

(Forooghi, 1996: 46)

In another place, he conveys the definition of the 53rd verse of the scripture of Yusuf (وَمَا آتَىٰهُ نَفْسِي إِنَّ النَّفْسَ لَأَمَّارَةٌ بِالسُّوءِ إِلَّا) (مَا رَحِمَ رَبِّي إِنَّ رَبِّي غَفُورٌ رَحِيمٌ) as follows:

حذر از پیروی نفس که در راه خدای مردم افکن تر از این غول بیابانی

(Forooghi, 1996: 46)

Or the concept of the second verse of the scripture of Saf (يَا أَيُّهَا الَّذِينَ آمَنُوا لِمَ تَقُولُونَ مَا لَا تَعْمَلُونَ) which I conveyed in the following beautiful lines:

سعدیا گر چه سخندانی و مصالح گوی به عمل کار بر آید به سخندانی نیست

(Forooghi, 1996: 793)

Several prayers that are mentioned in Koran, Sadie has also mentioned them in his works. For example the concept of the 44th verse of the scripture of Asra (سُبْحٰنَ لَهٗ السَّمٰوٰتُ السَّبْعُ وَالْاَرْضُ وَمَنْ فِيهِنَّ وَاِنْ مِنْ شَيْءٍ اِلَّا يُسَبِّحُ بِحَمْدِهٖ وَلٰكِنْ لَا تَفْقَهُونَ تَسْبِيحَهُمْ اِنَّهٗ كَانَ) (حَلِيمًا غَفُورًا).

توحید گوی او نه بنی آمدند و بس هر بلبلی که زمزمه بر شاخسار کرد

(Forooghi, 1996: 797)

In the following line Sadie has pointed to the seventh verse of the scripture of Ibrahim (وَإِذْ تَأْتِيَنَّكُمْ لَنْ تُكْفِرُوا عَنْكُمْ وَإِنَّكُمْ لَأَرِيدُنَّكُمْ وَلَنْ) (كَفَرْتُمْ إِنَّ عَذَابِي لَشَدِيدٌ):





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شاید که التماس کند خلعت مزید سعدی که شکر نعمت پروردگار کرد

(Forooghi, 1996: 797)

Also in the preamble of Golestan, Sadie has used this verse in the expression of each favor requires a thank giving.

In the 11th story of the second part of Golestan, Sadie has brought the following line in which he had implicitly referred to the exact definition of the 16th verse of the scripture of Ghaf (وَلَقَدْ خَلَقْنَا الْإِنْسَانَ وَتَعَلَّمَ مَا لَوْ سُوَسُ بِهِ نَفْسُهُ وَنَحْنُ أَقْرَبُ إِلَيْهِ مِنْ) (حَبْلُ الْوَرِيدِ) without mentioning the original text.

It is worth mentioning that sometimes, Sadie has implemented Koranic words in his works and in using this method, he has shown himself better than others and has used more Koranic words; also in several works, he has used the translations of Koranic texts and instead of Arabic words, he has used their plain and simple interpretations as a bridge for transferring the minds into the ocean of Koranic educations. For people who are familiar with Koranic education and debates is the fastest and closest way to convey long concepts in short sentences in a way that by the use of minimum words, the maximum concepts are transferred.

For example the following line:

گو نظر باز کن و خلقت نارنج ببین ای که باور نکئی فی الشجر الاخضر نار

(Forooghi, 1996: 807)

He has brought a certain and exact reference to the 80th verse of the Yas scripture (الَّذِي جَعَلَ لَكُمْ مِنَ الشَّجَرِ الْأَخْضَرِ نَارًا فَإِذَا أَنْتُمْ مِنْهُ) (تَوْفِقُونَ) in terms of monotheism.

Reflection of Koran in Arabic odes

In Sadie's Arabic odes there are also Koranic derivations and some of them are presented in the following as examples:

مَثَلٌ وَفَوْفَكَ عِنْدَ اللَّهِ فِي مَلَاء (يَوْمَ التَّغَابُنِ) وَ اسْتَيْقِظْ لِمُرَدَجِر
يا فاعل الذنوب هل ترضى لنفسك في قييد الاسارى و اخوان (على سرور)

(Moyed Shirazi, 1982: 142)

Translation

Imagine yourself among a group of people in front of god on the last day and be aware of the advices of advisors.

O wrong doer, do you find it pleasant for yourself to be in chains on that day while your brothers are lying on beds?

In the first line, Sadie has taken the phrase of (يوم التغابن) from the scripture of Taghabon (يَوْمَ يَجْمَعُكُم لِيَوْمِ الْجَمْعِ ذَلِكَ يَوْمُ التَّغَابُنِ) (وَمَنْ يُؤْمِن بِاللَّهِ وَيَعْمَلْ صَالِحًا يُكْفَرْ عَنْهُ سَيِّئَاتِهِ وَيُدْخِلْهُ جَنَّاتٍ تَجْرِي مِنْ تَحْتِهَا الْأَنْهَارُ خَالِدِينَ فِيهَا أَبَدًا ذَلِكَ الْفَوْزُ الْعَظِيمُ) and the second stanza of the second line is related to the scripture of Hijr (وَنَزَعْنَا مَا فِي صُدُورِهِمْ مِنْ غَلٍّ إِخْوَانًا عَلَى سُرُرٍ مُتَقَابِلِينَ) (Moyed Shirazi, 1982: 198; Alfakiki 1996: 74).





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In the elegy of Imam Ali and the description of the event of Bagdad, Sadie says

فَلَا تُحْسِنَنَّ اللَّهُ مُخْلِفاً وَعَدُوهُ) بَانَ لَهُمْ دَارَ الْكِرَامَةِ وَالْبِشْرِ

(Alfakiki, 1996: 135-136)

Never think that God may deviate from his promises and he will be kept in a house full of happiness and glory. The first stanza is derived from scriptures such as Ibrahim (لَكِنَّ النَّبِيْنَ اتَّقَوْا) 29/ زمر/ «فَلَا تُحْسِنَنَّ اللَّهُ مُخْلِفاً وَعَدُوهُ رُسُلُهُ إِنَّ اللَّهَ عَزِيزٌ ذُو انْتِقَامٍ»؛ و آل عمران/ 9 «رَبَّنَا إِنَّكَ جَامِعُ النَّاسِ لِيَوْمٍ لَّا رَيْبَ فِيهِ إِنَّ اللَّهَ لَا يُخْلِفُ وَعَدَّهُ اللَّهُ لَا يُخْلِفُ اللَّهُ وَعَدَّهُ وَلَكِنَّ أَكْثَرَ النَّاسِ لَا يَعْلَمُونَ»؛ حج/ 47 «وَيَسْتَعْجِلُونَكَ بِالْعَذَابِ وَلَنْ يُخْلِفَ اللَّهُ وَعْدَهُ وَإِنَّ يَوْمًا عِنْدَ رَبِّكَ كَأَلْفِ سَنَةٍ (الميعاد) and Rome (وَلَا تُحْسِنَنَّ الَّذِينَ قَاتَلُوا فِي سَبِيلِ اللَّهِ أَمْوَالًا بَلَّ أَحْبَاءَ عِنْدَ رَبِّهِمْ (يَرْزُقُونَ).

(Alfakiki, 1996: 135-136)

أَيَا أَحْمَدَ الْمَعْصُومِ لَسْتَ بِخَاسِرٍ وَ رَوْحَكَ وَ الْفِرْدَوْسُ (عُسْرٌ مَعَ الْيُسْرِ)

عَلَيْهِمْ سَلَامُ اللَّهِ فِي كُلِّ لَيْلَةٍ بِمَقْتَلَةِ الزُّورِ إِلَى (مَطْلَعِ الْفَجْرِ)

(Moyed Shirazi, 1984: 135)

O Innocent Ahmed, you have not suffered any loss because your psyche and heaven are the indicators of combination of hardship and redemption.

Every night until morning, shall God's regards be upon him in the killing grounds of Bagdad (Moyed Shirazi, 166-167).

The second stanza of the first line is derived from the scripture of Itlag (لِيُنْفِقُوا ذُو سَعَةٍ مِّنْ سَعَتِهِ وَمَن قَدَرَ عَلَيْهِ رِزْقُهُ فْلْيُنْفِقْ مِمَّا آتَاهُ اللَّهُ) and the second stanza of the second line is also a derivation from the fifth verse of the scripture of Ghadr (سَلَامٌ هِيَ حَتَّىٰ مَطْلَعِ الْفَجْرِ).

حَبِسْتُ بِجَفَنَى الْمَدَامِعِ لَا تَجْرِي (فَلَمَّا طَغَى الْمَاءُ) اسْتَطَالَ عَلَى السِّبْكِ

كَأَنَّ شَيْطَانِينَ الْفِيُودِ ثَقُلْت فَسَالَ عَلَى بَغْدَادَ (عَيْنٌ مِنَ الْفَطْرِ)

(Moyed Shirazi, 138 and 131)

I have kept my eyes open with my eyelash so that it does not collapse but when the water flows; it passes the thresholds of the river.

It seemed that the chained demons had been set free and a river of boiling copper was flowing in Bagdad (Moyed Shirazi, 168).

The second stanza of the first line was derived from the scripture of Haghe (إِنَّمَا لَمَّا طَغَى الْمَاءُ حَمَلْنَاكُمْ فِي الْجَارِيَةِ) and the second stanza of the second line was also a derivation from the 12th verse of the scripture of Saba (وَرَوَّاحُهَا شَهْرٌ وَأَسَلْنَا لَهُ عَيْنَ الْقِطْرِ وَمِنَ الْجِبِّ مَن يَعْمَلُ بَيْنَ يَدَيْهِ إِذْ قَالَ رَبُّهُ وَمَنْ يَزَعُ مِنْهُمْ عَنْ أَمْرِنَا لُدْفَقَهُ مِنْ عَذَابِ السَّعِيرِ).





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وَ لَوْ كَانَ ذُو مَالٍ مِنَ الْمَوْتِ فَلَيْتَا لَكَانَ جَدِيرًا بِالتَّعَاطُمِ وَ الْكِبَرِ
رَبِحْتَ الْهُدَىٰ إِنْ كُنْتَ عَامِلًا صَالِحًا وَ إِنْ لَمْ تُكُنْ، (وَ الْعَصْرَ إِنَّكَ فِي خُسْرٍ)
عَفَا اللَّهُ عَنَّا مَا مَضَىٰ مِنْ جَرِيمَةٍ وَ مَنْ عَلَيْنَا (بِالْجَمِيلِ مِنْ الصَّبْرِ)

(Moyed Shirazi, 139 and 140)

If a rich man is not supposed to die, then it is justified for him to be proud and arrogant.

If you are a good doer, you will be guided and if not, I swear that you will fall.

I hope that god forgives our past sins and sheds his light of great patience.

Luminosity of Koranic verses in Persian odes

سبحان من يميت و يحيى و لا اله الا هو الذى خلق الارض والسما

(Forooghi, 1996: 784)

Referring to the scripture of Ya's, 81st verse

«أُولَئِكَ الَّذِينَ خَلَقَ السَّمَاوَاتِ وَالْأَرْضَ يَقَادِرُ عَلَىٰ أَنْ يَخْلُقَ مِثْلَهُمْ بَلَىٰ وَهُوَ الْخَلَّاقُ الْعَلِيمُ»
جایی که تیر قهر برآرد مهابتت ویران کند به سیل عرم جنت سبا

(Forooghi, 1996: 784)

Referring to the scripture of Saba, 34th verse

«فَاعْرَضُوا فَارْسَلْنَا عَلَيْهِمْ سَبِيلَ الْعَرَمِ وَبَدَّلْنَا هُمْ بِجَنَّتَيْهِمْ جَنَّتَيْنِ ذَوَاتِىْ أَكْلٍ خَمْطٍ وَأَثَلِ وَشَيْءٍ مِّنْ سِدْرٍ قَلِيلٍ»
الهامش از جلیل و پیامش ز جبرائیل رایش نه از طبیعت و نطقش نه از هوی

(Forooghi, 1996: 785)

Referring to the scripture of Najm, 53th verse

«وَمَا يَنْطِقُ عَنِ الْهَوَىٰ»
دانی که در بیان اذا الشمس كورت معنی چه گفته اند بزرگان پارسا

Referring to the scripture of Takvir, 81th verse

«إِذَا الشَّمْسُ كُوِّرَتْ»
کس را چه زور و زهره که وصف علی کند جبار در مناقب او گفته هل اتی





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(Foroughi, 1996: 786)

Referring to the scripture of Ensan, 76th verse

«هَلْ أَتَى عَلَى الْإِنْسَانِ حِينٌ مِّنَ الدَّهْرِ لَمْ يَكُن شَيْئًا مَّذْكُورًا»

شگفت نیست گر از طین به در کند گل و نسرين همان که صورت آدم کند سلاله طین را

(Foroughi, 1996: 788)

Referring to the scripture of Momenoon, 23th verse

«وَلَقَدْ خَلَقْنَا الْإِنْسَانَ مِنْ سُلَالَةٍ مِّن طِينٍ»

گر اشتیاق نویسم به وصف راست نیاید چنان مرید محبم که تشنه ی ماء معین را

(Foroughi, 1996: 789)

Referring to the scripture of Malak, 67th verse

«هَلْ أَرَأَيْتُمْ إِنْ أَصْبَحَ مَاؤُكُمْ غَوْرًا فَمَنْ يَأْتِيكُمْ بِمَاءٍ مَّعِينٍ»

به خاک بر مرو ای آدمی بکشی و ناز که خاک پای تو همچون آدمی زاد است

(Foroughi, 1996: 792)

Referring to the scripture of Asra, 17th verse

«وَلَا تَمْشُ فِي الْأَرْضِ مَرَحًا إِنَّكَ لَنْ تَخْرِقَ الْأَرْضَ وَلَنْ تَبْلُغَ الْجِبَالَ طُولًا»

Also referring to the scripture of Loghman, 31st verse

«وَلَا تُصَعِّرْ خَدَّكَ لِلنَّاسِ وَلَا تَمْشُ فِي الْأَرْضِ مَرَحًا إِنَّ اللَّهَ لَا يُحِبُّ كُلَّ مُخْتَالٍ فَخُورٍ»

مسمار کوهسار به نطع زمین بدوخت تا فرش خاک بر سر آب استوار کرد

(Foroughi, 1996: 797)

Referring to the scripture of Naba, 78th verse

«أَلَمْ نَجْعَلِ الْأَرْضَ مِهَادًا» و آیهی/7 «وَالجِبَالَ أَوْتَادًا»

دار القرار خانه ی جاوید آدمیست این جای رفتنت نشاید قرار

(Foroughi, 1996: 798)

Referring to the scripture of Ghafer, 40th verse





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«يَا قَوْمِ إِنَّمَا هَذِهِ الْحَيَاةُ الدُّنْيَا مَتَاعٌ وَإِنَّ الْآخِرَةَ هِيَ دَارُ الْقَرَارِ»

سعدی بهر نفس که برآورد چون سحر چون صبح در بسط زمین انتشار کرد

(Foroughi, 1996: 798)

Referring to the scripture of Takvir, 81st verse

«وَالصُّبْحُ إِذَا تَنَفَّسَ»

خبر آورد مبشر که ز بطنان عراق وفد منصور همی آید و رفت فرمود

(Foroughi, 1996: 804)

Referring to the scripture of Hood, 11th verse

«وَأَتَّبِعُوا فِي هَذِهِ لَعْنَةُ وَيَوْمَ الْقِيَامَةِ بِئْسَ الرَّفْدُ الْمَرْفُودُ»

پارس را نعمتی از غیب فرستاد خدای پارسیان را ظلی به سر آمد ممدود

(Foroughi, 1996: 804)

Referring to the scripture of Vaghe'eh, 56th verse

«وَأَصْحَابُ الْيَمِينِ مَا أَصْحَابُ الْيَمِينِ»

And 28th verse

«فِي سِدْرٍ مَّخْضُودٍ»

and 29th verse:

«وَوَطَّحَ مَنْضُودٍ»

And 30th verse

«وَوَظِلٌّ مَّمْدُودٍ»

کوه و دریا و درختان همه در تسبیحند نه همه مستمعی فهم کند این اسرار

(Foroughi, 1996: 806)

Referring to the scripture of Asra, 17th verse

«تَسْبِيحٌ لَهُ السَّمَاوَاتُ السَّبْعُ وَالْأَرْضُ وَمَنْ فِيهِنَّ وَإِنْ مِنْ شَيْءٍ إِلَّا يُسَبِّحُ بِحَمْدِهِ وَلَكِنْ لَا تَفْقَهُونَ تَسْبِيحَهُمْ إِنَّهُ كَانَ حَلِيمًا غَفُورًا»

گو نظر باز کن و خلقت نارنج ببین ای که باور نکنی فی الشجر الخضر نار





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(Foroughi, 1996: 807)

Referring to the scripture of Yas, 36th verse

«الَّذِي جَعَلَ لَكُمْ مِنَ الشَّجَرِ الْأَخْضَرِ نَارًا فَإِذَا أَنْتُمْ مِنْهُ تُوقَدُونَ»

پاک و بی عیب خدایی که به تقدیر عزیز ماه و خورشید مسخر کند لیل و نهار

Referring to the scriptures of An'am, 6th verse

«فَالِقُ الْإِصْبَاحِ وَجَعَلَ اللَّيْلَ سَكَنًا وَالشَّمْسَ وَالْقَمَرَ حُسْبَانًا ذَلِكَ تَقْدِيرُ الْعَزِيزِ الْعَلِيمِ»

And the scripture of Yas, 36th verse

«وَالشَّمْسُ تَجْرِي لِمُسْتَقَرٍّ لَهَا ذَلِكَ تَقْدِيرُ الْعَزِيزِ الْعَلِيمِ»

And the scripture of Faslat, 41st verse

«مِمَّ اسْتَوَى إِلَى السَّمَاءِ وَهِيَ دُخَانٌ فَقَالَ لَهَا وَلِلْأَرْضِ ائْتِيَا طَوْعًا أَوْ كَرْهًا قَالَتَا أَتَيْنَا طَائِعِينَ»

جای دیگر با نعیم بار خدای چشمه ی سلسبیل و جوی عسل

(Foroughi, 1996: 489)

Referring to the scripture of Muhammad, 47th verse

«مَثَلُ الْجَنَّةِ الَّتِي وَعَدَ الْمُتَّقُونَ فِيهَا أَنْهَارٌ مِنْ مَاءٍ غَيْرِ آسِنٍ وَأَنْهَارٌ مِنْ لَبَنٍ لَمْ يَتَغَيَّرَ طَعْمُهُ وَأَنْهَارٌ مِنْ خَمْرٍ لَذَّةٍ

من آن ظلوم جهولم که اولم گفتمی چه خواهی از ضعفا ای کریم و از جهال

(Foroughi, 1996: 821)

Referring to the scripture of Ahzab, 33rd verse

«إِنَّا عَرَضْنَا الْأَمَانَةَ عَلَى السَّمَاوَاتِ وَالْأَرْضِ وَالْجِبَالِ فَأَبَيْنَ أَنْ يَحْمِلْنَهَا وَأَشْفَقْنَ مِنْهَا وَحَمَلَهَا الْإِنْسَانُ إِنَّهُ كَانَ ظَلُومًا جَهُولًا»

مرا تحمل باری چگونه دست دهد که آسمان و زمین بر نتافتند و جبال

(Foroughi, 1996: 821)

Referring to the interpretation of the scripture of Ahzab, 33rd verse

«إِنَّا عَرَضْنَا الْأَمَانَةَ عَلَى السَّمَاوَاتِ وَالْأَرْضِ وَالْجِبَالِ فَأَبَيْنَ أَنْ يَحْمِلْنَهَا وَأَشْفَقْنَ مِنْهَا وَحَمَلَهَا الْإِنْسَانُ إِنَّهُ كَانَ ظَلُومًا جَهُولًا»

دو چیز حاصل عمر است نام نیک و ثواب و زین دو در گذری کل من علیها فان

(Foroughi, 1996: 828)





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Referring to the scripture of Ar'rahman, 55th verse

«كُلُّ مَنْ عَلَيْهَا فَانٍ»

مه از فروغ تو بر آسمان نمی تابد چه جای ماه خورشید لا یکاد بین

(Foroughi, 1996: 833)

Referring to the scripture of Zakhraf, 43rd verse which has used "لا یکاد":

«أَمْ أَنَا خَيْرٌ مِّنْ هَذَا الَّذِي هُوَ مَهِينٌ وَلَا يَكَادُ بَيْنُ»

خدای تا گل آدم سرشت و خلق نگاشت سلاهی چو دیگر از طین نیافرید

(Foroughi, 1996: 833)

Referring to the scripture of Momenoon, 23rd verse and its meaning

«وَلَقَدْ خَلَقْنَا الْإِنْسَانَ مِنْ سُلَالَةٍ مِّنْ طِينٍ»

دریغ خلعت دبیای احسن التقویم بر آستین تنعم طراز زیبای

(Foroughi, 1996: 840)

Referring to the scripture of Tin, 95th verse

«لَقَدْ خَلَقْنَا الْإِنْسَانَ فِي أَحْسَنِ تَقْوِيمٍ»

دامن مکش ز صحبت ایشان در بهشت دامن کشان سندس خضرند و عبقری

(Foroughi, 1996: 848)

Referring to the scripture of Kahf, 18th verse

«أُولَئِكَ لَهُمْ جَنَاتٌ عَدْنٌ تَجْرِي مِنْ تَحْتِهِمُ الْأَنْهَارُ يُحَلَّوْنَ فِيهَا مِنْ أَسَاوِرَ مِنْ ذَهَبٍ وَيَلْبَسُونَ ثِيَابًا خُضْرًا مِّنْ سُندُسٍ وَإِسْتَبْرَقٍ مُّتَّكِنِينَ فِيهَا عَلَى الْأَرَائِكِ نَبَّحُوا بِكَلِمَاتٍ لَّيْسَ فِيهَا مِنْ عَجْوٍ وَلَا مِثْلِهِ مِنَ الْأَنْجِينِ وَالَّذِينَ هُمْ عَنْ آلِهَتِهِمْ كَارِهُونَ أُولَئِكَ أَدْخَلَهُمْ ابْتِغَاءَ مَقْصُودَتِهِمْ فِي الْجَنَّةِ وَالَّذِينَ هُمْ عَنْ آلِهَتِهِمْ كَارِهُونَ أُولَئِكَ أَدْخَلَهُمْ ابْتِغَاءَ مَقْصُودَتِهِمْ فِي الْجَنَّةِ وَالَّذِينَ هُمْ عَنْ آلِهَتِهِمْ كَارِهُونَ أُولَئِكَ أَدْخَلَهُمْ ابْتِغَاءَ مَقْصُودَتِهِمْ فِي الْجَنَّةِ وَالَّذِينَ هُمْ عَنْ آلِهَتِهِمْ كَارِهُونَ أُولَئِكَ أَدْخَلَهُمْ ابْتِغَاءَ مَقْصُودَتِهِمْ فِي الْجَنَّةِ»

CONCLUSION

The answer to the first research Hypothesis

Persian speaking writers and poets have applied Koranic scriptures and themes in their works in many different ways and Koranic viewpoints have influenced their works impressively. Sadie Shirazi is one of the poets who has used the divine book in his works and has been able to make his words so much better and more pleasant. The style of his speech deserves to be researched on and thought over in many different ways.

The answer to the second research hypothesis





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The way Koranic verses interred Sadie's works

Indirectly

In Golestan's many parts, there are no direct allusions to the Koranic verses, but the themes are Koranic and at the end of the text or the anecdote the verse is presented. The basis of Sadie's Koranic influences is not using directly; rather he applies the gist of Quran's doctrines in creating the setting of his poems and anecdotes.

Using the artistic style of Quran

Sadie's locution is indebted to Quran more than anything else. His wordings, his tendency to rhymes and pauses and even the tone of his words are similar to Quran.

More 1200 allusions to the verses of Quran, Sadie's full dominance over Koranic verses in another reason of Sadie's Koranic approaches. There are more than 1200 hints to Koranic stories in Sadie's works and the story of Suleiman Youssef has been referred to the most. Because the story is interesting and has the capacity to be interpreted, it has been used by Sadie.

There are Quran's social moral keys and forbearing fellows and even the enemies in Sadie's ideas which have their roots in Koranic verses and prophetic manners.

Koranic literary masterpiece; investigating in the words of Golestan preamble leads us to the Koranic verses. And finally the truth of Islamic divinity is found in Sadie's sonnets which present God as the legitimacy of all the beauties in the world and Koranic themes have appeared in the sonnets of this master of speech very beautifully. Therefore the first

Research hypothesis which says Sadie has used the different ways of influence including adaptation, allegory, and allusion and... has been proved. It was proved that this influence was applied in Boostan, Golestan, Persian and Arabic poems and Koranic verses regarding God's admirations, teaching moral and Islamic points and sufficient conclusions in life. Boostan is Sadie's Utopia and he has been influenced by Quran in this work more than the other ones and Golestan is Sadie's actual world.

Therefore the second research hypothesis which says Sadie has been influenced by Quran in Boostan more than the other works has been proved.

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Ode in Amr Ibn Kolthum's Collected Poems

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ABSTRACT

Ode has a significant place in the poetry of Amr Ibn Kolthum and it can be said that the greatest part of this capable author has been assigned to ode. Studying the poet's life shows his inseparable connection to the themes of ode. This research aims to investigate the themes ode in Kolthum's poetry after giving a short review of the poet's life. Also it aims to categorize the stanzas based on their subjects, translate them and describe and explain them as much as possible. At the end of the research conclusion is presented.

Key words: life, glory, types of glory

INTRODUCTION

Amr Ibn Kolthum Ibn Etab Ibn Zahir Altaghlibi, great grandson of Taghlib Ibn Vael who is related to Ma'ad Ibn Adnan, was born in Arabia in spring and he died in 500 AD. His mother was Leili, Mohalhel's daughter. The poet was raised in an environment of honor and headship and he was elected to the leadership of the tribe at the age of 15. He lived a long life and he died at the age of 150. (Ghalayini, 1987:40)

Statement of Problem

Ode is one of the most significant poetic subjects which Taghlib Poets, Including Amr Ibn Kolthum, have practiced it. He is one of the first poets who have applied glorification in his odes and texts. And the most important themes that Amr Ibn Kolthum has presented in his poems are: odes about family and men, odes about strength and persistence, odes about horsemen and their power, odes about troopers, armies and severity of repressing the enemies, spearing





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and damaging the enemies, odes about the abundance of refugees, spoils and patience in wars, women getting accustomed to the abundance of wars, odes about social values like benefaction and odes about lordship and magnitude.

The Importance of the Research

Since making familiar with the subjects, purposes and speech figures of Amr Ibn Kolthum and knowing his opinions are necessary for the researchers of Arabic literature and the students and enthusiasts of pre-Islam poets, this research can give them extensive information about the opinions and poetic purposes of this poet.

Research Questions

What is one of the most important themes and aims Amr Ibn Kolthum?

What is the most important concepts which Amr Ibn Kolthum has emphasized in his poems?

Background

So far no inclusive research has been done on the poetic themes and aims of Amr Ibn Kolthum in Persian, but some people have mentioned these aims and poetic characteristics briefly in Arabic and they have only mentioned them in some paragraphs or one or two pages.

Amr Ibn Kolthum, Collected poems, researched by Doctor Amr Farooq Alteba, who has written about glory between the poems briefly.

Amr Ibn Kolthum, Collected poems, researched by Doctor Emil Badi Yaqoub, who has devoted some paragraphs to glory in his research in general.

Glory as a word

Boasting, flaunting, swaggering, and bragging about the characteristics of oneself and one's family. (Dehkhoda, 1994)

Reasons of Tendency toward Odes

Odes were so prevalent in Arabic literature and it seems that Arabs were interested in odes more than other poetic forms. Paeon, in which Arabs were interested, was in fact a personal or tribal ode. (Shamisa, 2009: 228)

Feudalism and tribal prejudices among Arabs; 2- Ode is an artistic evaluation in some respects; 3- Social and political issues, propagating past issues, are included in ode; 4- Ode is the agent of gaining ailments and attracting the kindness of the worshipped; 5- Disputes and conflicts of the poets make them write odes; 6- Ode is the poet's self-defense; 7- Sometimes ode is about defending the divinity and freedom.

Ode in the Light of Psychology

Psychological viewpoint on ode is remarkable. Especially that in some respects ode is rooted in an internal need and we know that one of the important topics of psychology is "need" and knowing the human's needs. Two of the famous contemporary psychologists Murray and Maslow have theories related to this field (Shojaee, 2009: 16). Some





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of these theories like “aggression, confrontation, dominance and escaping humiliation” are related to the subjects of ode. But Maslow has categorized the human needs in five levels including physiologic, safety, love and kindness, self-esteem and self-actualization (Shoarinejad, 1992: 433). This theory shows that the needs of safety, self-esteem and self-actualization are directly related to ode and all these points show that ode is connected to the nature of human beings and its outbreak is the answer to a fully psychological need.

Concepts of Ode in Amr Ibn Kolthum’s Life

The connection between bragging and awareness of personality leads to honor and self-esteem. Many times the bragging behavior of people, especially artists, is because others do not honor them as they should and neglect their abilities.

About this point the story which Zabihollah Mahallati has brought in his book, *Riahin Alshariat*, about Kolthum is mentioned here:

One day Amr Ibn Hind asked one of the nobles of the court: Do you know a person whose mother is unwilling to serve my mother? The answer was: If there is, she is Amr Ibn Kolthum’s mother because her father is Mohalhel Ibn Rabie whose prowess is known and his uncle is Kalib Ibn Vael who is very grand among Arabs and his husband is Kolthum Ibn Malek who is the bravest among the tribes and his son is Amr Ibn Kolthum who is the leader of the tribe.

Amr Ibn Hind intended to take Amr Ibn Kolthum’s mother to his own mother’s service and he thought of a trick to achieve his goal. He sent a kind and gentle letter and gifts to Amr Ibn Kolthum and told him: come visit us and make us happy. Also bring your mother as my mother wants to meet her. When Amr Ibn Kolthum received the letter, he departed for Hirah with his mother and a group of Al Taghlib tribe.

When Amr Ibn Hind heard the news, he ordered to prepare a cupola between Hirah and Euphrates for them and a tent was prepared for Amr Ibn Kolthum’s mother near that cupola. When they arrived Amr Ibn Hind and Amr Ibn Kolthum were housed in one tent and the mothers were house in the other. Amr Ibn Hind told his mother to empty her tent of the servants so that Kolthum’s mother and she were alone. Then I ask for something from your tent and because the servants are not present you ask Kolthum’s mother to stand up and bring that thing. By using this trick you have ordered her and she has obliged.

Therefore Amr Ibn Hind was housed in one tent with the nobles and Leili was housed in the other tent with Hind’s mother and the tent was emptied of servants as Hind had ordered. Then the food was served and Amr Ibn Hind called for something from the mothers’ tent and Hind’s mother told Kolthum’s mother that the servants are not available so please stand up take the thing which is asked for. When Leili heard this, whole world got dark for her and she cried that Hind’s mother was trying to coerce her to serve them and she cried: «و اذلاء يا تغلب» and when her voice was raised and Amr Ibn Kolthum heard her voice, he realized that they are trying to degrade her mother and ask her to do the servants’ job. He became furious and stood up briskly and took Amr Ibn Hind’s sword which was hung from the tent’s jamb and ran and decapitated Amr Ibn Hind. Then he ordered his people to rebel and they took everything in the tents as spoils and took his own mother and headed for the island. The very Amr Ibn Kolthum became the leader of the tribe and lived for 150 years (Mahallati, 273)

Referring to this story in his collected poems, the poet says:

بأيّ مشيئةٍ عمرو بن هذيل طبع بنا الوئسة وتزدرينا





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Amr Ibn Hind! What made you to relate other people's slanders to us and degrade us?

تَهْدَدُنَا وَتُوْعِدُنَا رُوَيْدَا مَتَى كُنَّا لِأَمْكٍ مَفْتُونِيْنَا

Stop this threat and menace! When was my mother the servant of your mother?

The conclusion of this story is that the poet's self-defense and his prejudice made him react in such a way and murder the king of the time.

Discussing the Subjects of Odes in Amr Ibn Kolthum's poems

Odes about Drinking Wine

In Kolthum's collection, "Mal'aghe", ملعقه, attracts our attention more than the other ones. It consists of 101 stanzas which start with this line:

أَلَا هُبِّي بِصَخْنِكَ فَاصْبِحِيْنَا وَلَا تُبَيِّ خُمُورَ الْأَنْدَرِيْنَا

The poet asks the butler to wake up and fill his glass with Andarin wine and in the sequencing lines he describes this type of wine

مُسْعَسَعَةٌ كَأَنَّ الْحُصَّ فِيهَا إِذَا مَا الْمَاءَ خَالَطَهَا سَخِيْنَا

A smooth wine as you add water to it, it seems that the water is mixed with saffron.

تُجُورُ بذي اللَّبَانَةِ عَنْ هَوَاهِذَا مَا ذَافَهَا حَتَّى يَلِيْنَا

A kind of wine which deprives the needy from perusing his needs and a glass of it will remove all the grief of the world from the soul.

تَرَى اللَّحْزَ الشَّحِيحَ إِذَا أَمْرَتْ عَلَيْهِ لِمَالِهِ فِيهَا مُهِيْنَا

It is a kind of wine which makes the greedy people forget about their greed if they drink it.

Odes about Camels

ذِرَاعِي عَيْطَلٍ أَمَاءَ بَكَرِهِ جَانِ اللَّوْنِ لَمْ تُقْرَأْ جَنِيْنَا

You see white arms, like the arms and hands of a camel that is not carrying a fetus yet.

Explanation: The poet is trying to brag about his camel being fat.

وَتَذِيَا مِثْلَ حَقِّ الْعَاجِ رَخْصَا حَصَانَا مِنْ أَكْفِ اللَّامِسِيْنَا

Soft, tender, untouched and gentle breasts like two ivories.

وَمَتْنِي لِدِنَةِ سَمَقَتْ وَطَالَتْ وَأَدْفِيهَا تَسْوَاءُ بِمَا وَلِيْنَا





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And its long and extensive stature appeared from two sides and its fat buttocks made it hard for it to stand up.

وَمَا كَمَّةٌ يَضِيقُ الْبَابُ عَنْهَا وَكَثْنًا قَدْ جُنْتُ بِهِ جُنُونًا

The buttocks which cannot enter the door and such beautiful stomach and belly which make you go crazy.

وَسَارِيَّتِي بَلَنْطٍ أَوْ رُخَامِيرُنْ خَشَّاشٌ حَلِيهَمَا رَبِينَا

And two legs like two columns of ivory or marble which is decorated with anklets that make a pleasant sound when it walks.

Odes about Horses

In one part of the collection, we see the poet glorifying his horses

وَتَحْمِلُنَا غَدَاةَ الرَّوْعِ جُرْدُ عُرْفِنَ لَنَا نَفَائِدَ وَالْقَلْبَيْنَا

In the morning of the war we ride on agile horses. These horses were born and brought up in our houses and we have freed them from the enemies so many times after plunder.

وَرَدْنٌ دَوَارِعَا وَخَرَجْنُ شُعْنًا كَأَمْثَالِ الرِّصَالِ قَدْ بَلَيْنَا

They enter the battle field armored and they exit some moments later dusted while they look ragged and spent just like the knot of their frenum.

وَرَثْنَاهُنَّ عَنْ آبَاءِ صِدْقٍ وَنُورٍ إِذَا مَنَّا بَيْنَنَا

And we have inherited these nimble steeds from our fathers and we leave them for our children.

Odes about the Tribe

أَبَا هِنْدٍ فَلَا تَعْجَلْ عَلَيْنَا وَأَنْظِرْنَا نُخْبِرَكَ الْيَقِينَا

Abu Hind! Do not hurry so much and let me reveal to you the truth.

بِأَنَّ نُورِدُ الرِّاْيَاتِ بِيضًا وَنُصْدِرُهُنَّ حُمْرًا قَدْ رَوِينَا

Do you know what the truth is? We enter our white flags to the field from one side and we exit them from the other side saturated with the blood of adversary.

وَأَيَّامَ لَنَا غُرٌّ طِيَوَالِ عَصِينَا الْمَلِكِ فِيهَا أَنْ نَدِينَا

In the history of our lives there are glorious and bright days. And we rebel constantly until we are captured by the king.

Explanation :By using the word "غُرٌّ", the whiteness of the horse's forehead, the poet wants to say that the days of their lives are so famous and outstanding in the history.





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وَسَيِّدٌ مَعْتَسِرٌ قَدْ تَوَجَّهْنَا جِالِدُ الْمَلِكِ يَحْمِي الْمُحْجَرَيْنَا

There were so many masters who had the kingship crowns on their heads and were the shelter of the runaways, but they were surrendered by us.

Explanation :When a king who shelter other people, takes shelter in Amr Ibn Kolthum's tribe; it shows the pinnacle of the poet glorifying his tribe.

تُرَكَّنَ الْخَيْلَ عَاكِفَهُ عَلَيْهِ مُقَلَّدَةً أَعْتَقَهَا صُفُونَا

And we tethered the horses and kept them around the corpses.

Odes about the People of His Tribe in War

وَقَدْ هَرَّتْ كِلَابُ الْحَيِّ مَنَاوَسَدَبْنَا قِتَادَةَ مَنْ يَلِينَا

When we used to wear the armor of war, we looked so terrifying that the tribe's dogs used to yowl from fear. We used to scatter any enemy which appeared and the enemy looked like a thistle which thorns had been removed.

مَتَى نَنْفُلُ إِلَى قَوْمِ رَحَانِيكُونُوا فِي اللِّقَاءِ لَهَا طَحِينَا

When we turn the mill of the war around a tribe's head, the people of that tribe are like the flour of that mill.

Explanation: The poet's skill in applying the metaphors in this line is unbelievable. As we see when the poet uses the word "رَحَان" , mill, for the war, he uses the word "طحين" , flour, for the dead.

Odes about Supporting the Tribe

نَعْمُ أَنْاسَنَا وَتَعَفُّ عَنهُمْ وَنَحْمِلُ عَنْهُمْ مَا حَمَلُونَا

We support our people with blessings, we protect their properties and we carry their loads.

The poet protects his tribe with help of youngsters and elders. The youngsters and elders who are described in these terms:

بِشَبَابٍ يَرُونَ الْقِتْلَ مَجْدًا وَشَيْبٍ فِي الْحُرُوبِ مُجَرَّبِينَ

With youngsters who sees honor in death and the elders who have spent the years of their lives in wars.

Comparing the swords of the poet's tribe to the adversary's swords is like comparing steel to iron

كَأَنَّ سَيْوْفَنَا مِثْلًا وَمِنْهُمْ مَخَارِيقُ بَأَيْدِي لَاعِبِينَا

It seems that the steel swords in our hands are like wooden swords in player's hands.

The poet talks about the power of his tribe in pitched battle with the enemy:





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نَشُقُّ بِهَا رُؤُوسَ الْقَوْمِ سَعًا وَنَحْتَلِبُ الرِّقَابَ فَتَحْتَلِينَا

We split the heads and cut the champion's heads like the stem of a plant.

Amr trust the precision of his tribe's swords as he believes in the ability to use the swords in pitched battles:

نُطَاعِنُ مَا تَرَخَى النَّاسُ عَنَّا وَتَضْرِبُ بِالسَّيْفِ إِذَا عَشِينَا

If the enemy is far from us we kill him by a spear and if he is close to us, we kill him by a sword.

Showing pity in war is just like cruelty to your own tribe and is a reminder of this famous line:

Showing pity toward a saber-toothed tiger, is cruelty to the sheep.*

And Amr is so proud of his tribe who observe this rule in the war

تَجِدُ رُؤُوسَهُمْ فِي غَيْرِ بَرَقَمَا يَدْرُونَ مَاذَا يَفْعُونََا

Without showing any kindness, we decapitate the enemies and they do not know how to deal with us.

His tribe is firm with the enemies like mountains and they do not turn their backs to the enemies not to make infamy:

نَصَبْنَا مِثْلَ رَهْوَةَ ذَاتِ حَدْمَاقِطَةَ وَكُنَّا السَّابِقِينََا

We choose a group which is like mount Rahwah and we conquer the enemy and preserve our honor and fame from being reproached.

Sometimes the poet exaggerates about the theme of glory so that it changes to pride

وَتَحْنُ الثَّارِكُونَ لِمَا سَخَطْنَا وَتَحْنُ الْأَخْدُونَ لِمَا رَضِينَا

If we ignore something are tend to obtain something, no one is able to confront us.

And pride is more obvious in this line

وَتَشْرَبُ إِنْ وَرَدْنَا الْمَاءَ صَفَا وَوَيْشْرَبُ غَيْرُنَا كَدْرًا وَطِينَا

If we find water, we drink from the clean and salubrious part and the others drink from the turbid and muddy part.

Also in another stanza he says about his tribe's children:

إِذَا بَلَغَ الْفَطَامُ لَنَا صَبِيَّتُخِرُ لَهُ الْجَبَابِرُ سَاجِدِينََا

When our children are ablated, the tyrant of the time will kneel in front of them.

The warriors' ability to use the sword makes the poet so proud





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عَلَيْنَا الْبَيْضُ وَالْيَلْبُ الْيَمَانِيُّوَأَسْيَافُ يَفْمُنُ وَيَحْنِينُنَا

We have the helmets on our heads and leather armors on our bodies and our swords become straight and curved because of the severity of the strikes.

When the poet compares another tribe which has gone to war and has returned with spoils to his own tribe, he says:

فَأَبَوْا بِالنَّهَابِ وَالسَّبَايَاوَأَبْنَا بِالْمُلُوكِ مُصْقَدِينُنَا

They began to plunder and returned with spoils and bondwomen, but we captured the kings instead.

Odes about the Ancestors

وَرَثْنَا الْمَجْدَ قَدْ عَلِمَتْ مَعْدَلُطَاعُنْ دُوْتُهُ حَتَّى بَيِّنُنَا

We have inherited this pride and grandeur from our fathers. We preserve this pride with our swords so that it becomes clear to everyone.

وَرَثْنَا مَجْدَ عَظْمَةِ بِنِ سَيْفِإِبَاحَ لَنَا حُصُونِ الْمَجْدِ دِينُنَا

We are the inheritors of Alghame Ibn Seif's grandeur and greatness. He made the castles of honor and greatness subjugate us.

وَرَثْتُ مُهْلَهْلًا وَالْخَيْرَ مِنْهُزُهَُيْرًا نَعْمَ دُخْرُ الدَّاخِرِينَا

We are the inheritors of Mohalhel and Zahir and Zahir was greater than Mohalhel. Oh! We are full of the treasures of honor.

Explanation :The poet remembers his ancestors as treasures and this is climax of him being proud of his ancestors.

وَعَتَابًا وَكُلْتُوْمًا جَمِيْعًا بِهِمْ نَلْنَا ثِرَاتِ الْاَكْرَمِيْنَا

We are the inheritors of Etab and Kolthum. Yes! These honorable people are our heritage.

وَذَا الْبُرَةِ الَّذِي حَدَّثْتَ عَنْهُيْهُ نُحْمَى وَنَحْمِي الْمُلْتَجِيْنَا

We are the inheritors of Zolborah whom you have heard about a lot. We are under the protection of his greatness and refugees are under our protection.

وَمِنَّا قَبْلَهُ السَّاعِي كُلِّبُفَائِي الْمَجْدِ اِلَّا قَدْ وَاِلَيْنَا

Before him there was Kalib Ibn Vael, the man who was pursuing greatness continuously. Is there a position of grandeur and pride that we have not reached it?

Odes about Esteem and Immunity

اِذَا عَضَّ الْقَفَافُ بِهَا اَشْمَارَتْوَوَلْتُهُ عَشَوْرَتُهُ زَبُونُنَا





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In esteem and immunity we are like that powerful spear which moves as soon as the spear maker makes it and pushes him back severely.

عَسَوْرَتُهُ إِذَا انْقَلَبَتْ أَرْتَشَتْهُ فَمَا الْمُنْقَفُ وَالْجَبِيَّتَا

When these spears are bent harder, a severe sound is heard from them and they become so straight that they damage the bender's back and forehead.

Odes about the Champion of the Tribe's Army

إِذَا وَضِعَتْ عَنِ الْأَبْطَالِ يَوْمَ أَرَأَيْتَ لَهَا جُلُودَ الْقَوْمِ جُورَنَا

When the champions of our army take off their armor, you can see that their bodies have blackened underneath.

كَأَنَّ غَضُونَهُنَّ مَثُونٌ غَدْرُئُصْفَقَهَا الرِّيحُ إِذَا جَرَيْنَا

The creases of these shining armors are like the waves of the pond which wind has blown on it.

Odes about the Tribe's Women

إِذَا مَا رُحْنٌ بِمَشْيَيْنِ الْهُوَيْنَا كَمَا اضْطَرَبَتْ مَثُونُ الشَّارِبِيَّتَا

Our women strut while walking. Their manner is like the drunkards' strut.

يُقَشْنَ حَيَاتِنَا وَيَقْلُنَ لَسْمُ مَبْعُولَتِنَا إِذَا لَمْ نَمْنَعُوْنَا

They feed our horses and they say every time: If you let the enemy captivate us, you are not our husbands.

طَعَائِنَ مِنْ بَنِي جُنْتَمِ بْنِ بَكْرِ خَلَطْنَ بِمَيْسَمِ حَسَبًا وَدِينًا

These women are from the Hosham Ibn Bekr's dynasty and they have combined facial beauty with munificence and religion.

وَمَا مَنَعَ الطَّعَائِنَ مِثْلَ ضَرْبِ بَرَى مِنْهُ السَّوَاعِدَ كَالْقَلْبِيَّتَا

Only the strikes which hit the forearms and scatter the hands in the air can make these women being captivated by the enemy. Like the kids who strike the sieves with their woods while they are playing.

CONCLUSION

Ode is one of the main themes of Amr Ibn Kolthum's poem.

The subject of ode is more prevalent in Amr Ibn Kolthum's poems than other pre-Islamic poets.

In his odes, tribal prejudice is more seen than the other subjects.





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The poet glorification of his tribe is sometimes right, but it is sometimes unjust and it leads to exaggeration. Most of the poet's odes are accompanied by the reasons that Amr Ibn Kolthum presents in his stanzas.

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Abu-Nuas and Eulogy Writing

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ABSTRACT

Eulogy or praise poetry has existed since the most ancient times of Arab literature. This poetic subject was popularized during the periods of Omavi and Abbasids. In fact, Omavi and Abbasid caliphs used to encourage poets for writing eulogies in order to legitimize their reign. This research tries to investigate the methods and innovations of Abu-nuas, the great Abbasid era poet. In this research paper it will be explained that Abu-nuas was forced to write eulogies for caliphs such as Aaron, Amin and their ministers as a result of his condition and his needs. In addition to following the path of the previous poets, he has brought innovations in his eulogies and has not implemented a uniform method for all his eulogy writings.

Key words: Abu-nuas, Eulogy, Arabic poetry

INTRODUCTION

In Arabian literature, eulogy writers have always praised different classes of their societies in order to become popular and make an income. Since kings, rulers and caliphs had high political and economic powers, they were the most frequent subjects for eulogist poets. These poets have allocated most of their poems to this class for getting promotions. A eulogy cannot be considered as only a couple of invaluable stanzas of praise of a person; in addition to having artistic valor, these poems can familiarize us with the spirits of the poet, his contemporary culture and social matters and the society he used to live in.





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Statement of problem

Praising great warriors and traditional mores among the tribe and heroes of the battle field or a person who had been generous towards the poet are among the highly applied concepts of Arabian poetry. The history of eulogy writing in Arabian poetry returns to the age of ignorance.

Abu-nuas is considered as one of the greatest Arabian poets who hold a special place among the poets of the period of Abbasids. During Abu-nuas's period, eulogizing caliphs and holders of powers was extremely popular and many poets used to write eulogies. Several generousities and valuable gifts motivated eulogists or writing these types of poetry.

Regarding Abu-nuas, several Arabian researchers such as Ibn-Manzoor, Shoghi Seif and Omar Forrookh have performed general researches and these scholars have criticized and discussed different aspects of his life and his poetic characteristics, but still there are no independent and general researches regarding his eulogies. The author of the present research tries to investigate his method of eulogizing and characteristics of his eulogies with reference to his poems.

Necessity and importance of research

This research is important since Abu-nuas is one of the best and first rated poets of traditional Arabian literature who challenges some of traditions of ancient Arabian poetry; he was also born from a Persian mother and father and therefore, he was fascinated by Persian language and literature; effects of Persian literature are evident in his poems; application of high frequency of Persian words is an evidence for this fact.

Purposes of research

Theoretical purposes of this research include the following points:

- 1-Determination of the status of eulogy in Arabian poetry, 2-investigation of characteristics of eulogies of Abu-nuas, 3-explaining Abu-nuas's methods and innovations in his eulogies

Research questions

With respect to the subject of the research, the following questions are presented

- 1- What is the place of eulogy and praise poetry in Abu-nuas's court?
- 2- What was the intention of Abu-nuas by writing eulogies? What are his methods in his eulogy poems?
- 3- What innovations and creativities are evident in Abu-nuas's poems? And what technics are employed by the poet for beauty and impact of his words?

History of discussion

Great scholars have considered for poetries and personalities of Abu-nuas and have also written several books and articles regarding him (Ibn Manzoor, 2003; Navader Akhbar Abu Navas, Research: Yusuf Albagahai), (Ilia Alhavi, 1987; description of Abu-nuas's court, First section) and (Omar Forrookh, 1988; Abu-nuas, the poet of Aaron Rashid and Muhammad Amin).



**Ronak Hamze Azar and Ardeshir Saderdini****Abu-nuas and eulogy writing****Abu-nuas**

Abu-nuas is considered as a great Arabian poet. His exact date of birth is unknown. Different sources have mentioned his date of birth as the years 136, 145, 148 and 149 (Ibn-Manzoor, 2003: 9-10). And his place of birth is also known as Ahwaz, a city of Khuzestan province located in south western part of Iran (Forookh, 1969: 158).

As Ayati says "Abu-nuas lost his father during his childhood and his mother took him to Basra when he was two years old. In there, he learned the language of Arabic and was motivated for literature. Later, he became an apprentice for a n apothecary and also wrote some poets (Ayati, 1972: 24). He started studying in Basra, which was one of the largest scientific centers and also had bold scientists. Not only Abu-nuas was becoming skilled in poetry, he also dominated Quran's sciences, grammar and Arabian news (Azartash, 1988: 342).

After becoming famous in Basra, Abu-nuas left for Bagdad where the center of Abbasids reign was there. At the beginning, he did not dare to enter the court of the caliph but he earned his abutment. Because neither his lifestyle, nor his special poetry style would allow him to. But in the year 804, after repression of Barmakian's and administration of Fazl-Ibn Rabie, he became closer to the court of the caliph and eulogized Aaron. It seemed that he had successfully gained the attention of Aaron to some extent and was able to get close to him. But it didn't take long before the caliph started being annoyed by the behavior of that free poet. Especially his charge of heterodoxy and his drinking problems caused the caliph to hate him. So the caliph ordered to put him in jail and this jail time, lasted for four months. Abu-nuas started to ask for pardon and asked for caliph's pardon and forgiveness by sending him some of his odes. Afterwards, he headed for Egypt to find a praised one but he returned to Bagdad again and started eulogizing Amin, the son of Aaron.

As we can see in Abu-nuas's poems, he became regretful for his past deeds as he had aged and got old and started to repent. He passed away in the year 195 or 199 A.H (Shoghi Seyf, 1960: 158).

Abu-nuas lived in days in which people used to write poetries for subsistence. Therefore, his main purpose of eulogizing was to get paid. By the help of his intelligence, he was aware that Abbasid kings are selfish people and therefore, he went back to Bagdad to eulogize caliphs and kinglets. Most of the poets of Abbasid era looked upon poetry as an instrument of subsistence and reaching glory and greatness (Momtahn, 2012: 143).

The expression of eulogy is a serious expression and this type of expression was farfetched from the personality of Abu-nuas who used to see the life as a plaything. The main praise of Abu-nuas was for wine and adoration of other elements are as a result of hopelessness. Some times for receiving something from caliphs, kings, kinglets and etc. he was forced to eulogize them. Abu-nuas was also aware that praising is one of the innate characteristics of human. Until now, human's motivation for eulogizing is been referred to these elements: wonder, thanks giving, and earning (Jamali, 2002: 333).

The subjects of his eulogies are 105 odes in his main court. Some of them are merely written for eulogizing other people and some other are being written as pardon while he was in jail. Among his 105 eulogy odes, five odes are for praise of Aaron, twenty seven odes are for praise of Amin, four odes are for praise of Abbas-Ibn Abdullah, one ode is for praise of Yahya Barmaki, two odes are for praise of Fazl Barmaki, seventeen odes are for praise of Fazl-Ibn Rabie, two odes are for praise of his son Muhammad, six odes are for praise of Kasib and the other remaining ode is for praise of different people and even the poet himself.



**Ronak Hamze Azar and Ardeshir Saderdini****Definition of Eulogy**

In lexical terms, eulogy is defined as praise of characteristics and someone's good traits (Dehkhoda, 1956). In the abbreviations of eulogy literature, it is referred to as praise of a person by the poet for his good traits. Elaborating on the date of emergence of eulogy and eulogy writing among humans as a poetic technic is a hard task and undoubtedly, its origin is just unknown as the poet. Since human's tendency towards eulogy and praising is an innate fact and generally every human being is happy to be praised and eulogized and likes to be the subject of others praise. If generosity, bravery, chivalry, just, good doing and other behavioral attributes are related to someone, he or she will certainly become happy and proud even if he or she lacks those attributes (Ashmavi, 1983: 15).

Literati have defined praise as explanation of good attributes of a human and also have defined epics as a component of praise (Abu-Alabbas Saalab, 1908: 28). Some scholars consider the difference between eulogy and praise in their timing. It means that if the praised one is alive and bears attributes such as bravery, just and generosity it is considered as eulogy and after his death, mentioning the same attributes for him is known as praising (Ghedam-Ibn Jafar 1402 A.H: 118).

The place of eulogy in Arabian poetry

One of the most historical subjects that had been considered by poets in Arabian poetry is the subject of eulogy writing. The reason for emergence and popularity of eulogy writing among Arabs was that through this type of poetry they were able to state the greatness and honors of their tribe and praise their past, great people, warriors and people. Since even from the initiative periods, Arabian poetry had the highest cultural place among Arabs, was exposed to several changes concurrent with social and political changes that were made after prophecy of Muhammad. In this era, the ignorance type of eulogy was less frequent and most of eulogies were written for the praise of the prophet Muhammad and his characteristics. After that, some poets tried to praise the Arab caliphs during the era of Rashid caliphs. With the emergence of Omavi caliphs, poetry was again oriented towards its previous ignorance approach and turned into a tool for suppression of disagreeing parties. The caliphs of Omavi era asked for the help of poets for legitimation of their kingdom.

Also in the era of Abbasids, poetry had opened its way to the court and it was known as the most important apparatus for advertisement of politics and reigns' exhibition of their power. In this era, poets were selected from the participants of courts and many of them had written poems according to the system of kingdom and in this way, they were able to get close to the system of kingdom and were also provided with several different tribal and governmental gifts (Momtahan, 2012: 139-138).

The most important reason for popularization of eulogy writing during the Abbasids reign was that the Abbasid caliphs used to see poetry as an instrument of advertisement. In this era, the poet was considered as a horn which shouted the praise of the great people of the court. It would improve their power and spread right and false news regarding them and also used mesmerizing words for description of their traits and behavior.

Characteristics of Abu-nuas's eulogies

There are three evident and obvious characteristics in Abu-nuas's eulogies

Not following a special approach in eulogy poetry Abu-nuas does not use a uniform method and approach in his eulogy odes. Sometimes he uses complex and technical words and sometimes also uses simple and plain words and subjects. Abu-nuas uses powerful phrases in his eulogy odes in order to prove his dominance on both sides of poetry





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by this or to provide us with clues of his dominance on poetry and variability of his taste and senses (Forookh, 1988: 10).

In his eulogies, he uses a language different than the language used in his other poems and gets distant from the simplicity of their language. His language is even different in each eulogy. When he was eulogizing Aaron, he used to use a softer language. Shoghi Ziff considered his poetic softness as a result of his all-time happiness. Abu-nuas has not taken a uniform approach and since he has written most of his poems while he was drunk, his poems are different and that is why sometimes his poems are simple, beautiful and heavenly and also sometimes his poems are placed in lower situations as a result of weakness (Shoghi Ziff, 1976: 163).

As we can see in the following lines, the poet has implemented complex words and technics.

1- سَأَشْكُو إِلَى الْفَضْلِ بْنِ يَحْيَى بْنِ خَالِدٍ
هَوَاكِ لَعَلَّ الْفَضْلَ يَجْمَعُ بَيْنَنَا

2- إِذَا ضَنَّ رَبُّ الْمَالِ أَعْلَنَ جُودَهُ
بَحَى عَلَى مَالِ الْأَمِيرِ وَ أَتْنَا

1- I will complaint to Fazl-Ibn Yahya from your love. So that Fazl regroups us together again.

2- When other rich people are too tight-fisted to give their properties away, his generosity tells us to go towards the properties of the caliph and he gives away.

Eulogies of Abu-nuas are not comparable with the eulogies of Abu-Tamam and Motenabbi and while we read the eulogies of Abu-nuas, we can see that the poet is sometimes drowned in harsh and strange phrases and sometimes we can see that he uses soft and simple words. Sometimes he steps further in selection of harsh and complex and strange words and it seems like he does not care if the general public is able to understand his poems or they are just being written to relate the highest words to the highest held people as he thinks. A witness for this claim is his ode in eulogy of Abbas-Ibn Abdullah-Ibn Jafar Mansour (Nooreddin, 2000: 451).

Exaggeration

Exaggeration is the most principal characteristic of eulogy poetry during the Abbasids. In this era, eulogy writing is entangled with exaggeration and no one expects rational comparisons from of this era, whether the praised person or other readers. If the subject of this type of poetry was mere truth, there will be no joy in that. Exaggeration has become the most prevalent characteristic of Eulogy poetry during the Abbasids because poets have been looking upon it as a tool for earning money and since the nature of eulogists had changed with respect to their surrounding environment, they had abandoned the natural simplicity which they had been using at the start of their work (Albastani, 1997: 29).

In Abu-nuas's poems, this hyperbolic color had gradually given its place to exaggeration and inconceivable words and if we eliminate the narrow minded state of his poems, creation of subjects and design of words with lexical advantages which unconsciously grasps the attention of readers, then its content will not be lexically desirable. In his eulogies, he used exaggeration and over-exaggeration in holding his praised subjects higher than other human beings (Shoghi Ziff, 1976: 163).

Abu-nuas used to frequently take his eulogies to kings and caliphs and also he used to receive several presents for doing so. He exaggerated in his eulogies and whenever he intended to eulogize someone, he used to consider him as





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a noble and genuine person and holder of a set of fine and good behavioral traits without any flaws, defects and bad traits. In eulogizing Amin and Aaron he repeatedly overstates and in one instance he stated:

- 1- تَحَسَّنَتِ الدُّنْيَا بِوَجْهِ الخَلِيفَةِ هُوَ الصُّبْحُ إِذَا أَنَّهُ الدَّهْرُ مُسْفِرٌ
 2- قَدْ يَنْقُصُ القَمَرُ المُنِيرُ إِذَا اسْتَوَى وَ بَهَاءِ وَجْهِ مُحَمَّدٍ لَا يَنْقُصُ

1-the world gains its beauty from the shining face of the caliph. He is the bright morning, and the bright days.

2- Generosity and away giving is obvious by his face and when he looks at you, he looks with kindness and calamity.

Lack of true feelings in his eulogies

Abu-nuas's purpose by writing eulogies was merely for making his praise subjects happy and to motivate them towards giving away and he holds no heart feelings for most of his praise subjects. Although that there are several eulogies of Aaron in Abu-nuas's poems, but there are no similarities and resemblances between the poet and his praise subject. He wanted to use his eulogies in order to return to his life of drinking and etc. his eulogies, except for a few ones, are not honest and regarding Barmakis his words are explicit and harsh and he also has no fear for explicitly talking about corruption. Traditional introductions if odes of Abu-Nuas from the poets of the age of ignorance are free from true emotions and the artificial and non-realistic cries in utilization of strict and traditional phrases for praise of the subjects are abundant in his odes (Abdullah Alheshani, 2006: 230).

Methods of Abu-nuas in eulogy writing

Abu-nuas uses three methods in his eulogies

Innovation

In this method, he uses innovation and puts traditional trades of eulogy together and in contrast to the methods of elders who used to start their odes with descriptions of their subjects, he starts his odes with words of unfaithfulness of his subject as well as separation, reminders of young hood and also description of flowers and boys and women (Forookh, 1988: 64). Since in many of his poems, Abu-nuas has avoided providing descriptions of the subject, Dr. Taha Hussein believes that he has innovated in his eulogies (Taha Hussein, 2: 96). In his poems, he has humiliated the status of Arabs, their lifestyles and habits. In the following poem, you can see this characteristic of Abu-nuas and his innovation

- 1- دَعِ الرِّسْمَ الَّذِي نَثَرَا يُقَاسِي الرِّيحَ والمَطْرَا
 2- وَ كُنْ رَجُلًا أَضَاعَ العُمَ رَ فِي اللَّدَاتِ وَ الخَطْرَا
 3- يُرِينَا صَفْحَتِي قَمَرِ القَمَرَا
 4- يُزِيدُكَ وَجْهُهُ حُسْنًا إِذَا يُفَوِّقُ مَا زِدْتُهُ نَظْرَا





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- 1- Hands will remove complaints and cruelties and under his shelter, they find safety and calamity.
- 2- Someone who is related to the prophet of god, will indeed get you close to your wish and hopes.
- 3- A ruler to whom no one is similar, and no eye has witnessed a glory greater than his.
- 4- When the spears shoot blood to the sky and death becomes evident, birds intend to fly to his place, because they are certain that his victim are there to satisfy them.

Traditional eulogy

Although that Abu-nuas had humiliated the Arabian lifestyle in some of his poems, but there are also examples that refer to his full compliance with these traditional Arabian poetic technics and by the help of familiar phrases and interpretations that were familiar among the poets of the age of ignorance, eulogizes his subjects. One of the most important and principal reason for his return to traditional Arabian methods was that Caliphs liked this method for their eulogies (Nooreddin, 2000: 406).

Also Dr. Taha Hussein considers Abu-nuas's return to introduction about ignorance age as a result of hopelessness and for praise of people who preferred traditional eulogies over Abu-nuas's innovative eulogies. He believes that Abu-nuas's eulogies' content regarding Aaron Rashid is different from the content of his eulogies regarding his friends (Taha Hussein, 126: 2). This is why in poems that are written for the praise of Aaron, he returns to the same old tradition and does not test the new methods for considering for religious emotions of Aaron and only praises Aaron in traditional ways.

In these poems, similar to poets of age of ignorance, starts his eulogies with emphasis on the subject, effects of the house of the subject and mentions memories of the past and also describes animals such as camel and horse in the beginning and also explains about the hardships on his way towards reaching the subject and after that, starts eulogizing the subject. Like the content of his eulogies in the praise of Aaron Rashid, Hashimis and governmental authorities. For example, in the following ode which is written for the praise of Aaron, we see that he also uses the same old concepts:

1- حَيَّ النِّيارُ إِذَ الرِّمانُ زَمانُ وَ إِذَ الشَّباكَ لَنا حَرَئِ وَ مَعاُنِ
2- يا حَبَّذا سَفاوانُ مِن مَّترَبَعِ وَ لَربِّما جَمَعَ الهَوَى سَفاوانُ

- 1- Make those old houses alive again, because the good days were only those days that when Shabak was a desirable place.
- 2- Safovan was a good and desirable place and that place had gathered everyone's love and passion.

After describing a robust camel, he starts eulogizing Aaron

1- وَإِلى أَبِي الأَمَناءِ هارُونَ الَّذي يَحيا بِصَوابِ سَمائِهِ الحَيَوانِ
2- مَلِكُ تُصَوَّرَ في القلوبِ مِثالَهُ لَم يَحُلْ مِنهُ مَكانُ

- 1- And with this camel I am headed towards Aaron whose divine rain gives the life back to all beings
- 2- The king whose face is craved in our hearts seems that there is no place that he does not exist in.





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Another effective element in return of Abu-Nuas to his traditional introductions, is the element of time. The time period in which he had written his eulogies. Eulogies that he had written during the kingdom of Aaron Rashid, are different from his odes during the reign of Amin and the best example of those types of his eulogies are regarding Fazi-Ibn Rabie (Abdullah Alheshani, 2006: 230).

Descriptive eulogy

In this method, the poet praises a man and eulogizes his physical beauties. This type of eulogy is found in some stanzas of poems of poets of the age of ignorance and Abu-Nuas had not used this method frequently for praise of Aaron. But most of praises regarding Amin are of this type of eulogizing (Forookh, 1988: 64). For example, refer to the following ode in the praise of Amin:

| | | |
|---|--|----|
| هُوَ الصَّبِيُّ إِذَا أَتَهُ الدَّهْرَ مُسْفِرٌ | تَحَسَّنَتِ الدُّنْيَا بِوَجْهِ الخَلِيفَةِ | 1- |
| وَ يُنْظَرُ مِنْ أَعْطَافِهِ حِينَ يُنْظَرُ | يُسِيرُ إِلَيْهِ الجُودُ مِنْ وَجَنَاتِهِ | 2- |
| لَمْ يَعْذُكَ التَّجِيلُ وَ الإِكْرَامُ | 3- مَلِكٌ أَعْرُ إِذَا شَرَيْتَ بِوَجْهِهِ | |
| وَ بَهَاءُ وَجْهِ مُحَمَّدٍ لَا يَنْقُصُ | 4- قَدْ يَنْقُصُ القَمَرُ المُنِيرُ إِذَا اسْتَوَى | |

- 1- The world gains its beauty from the face of the Caliph. He is the morning and the shining day
- 2- Generosity and away giving is obvious by his face and when he looks at you, he looks with kindness and calamity.
- 3- He is a shining face king and when you get a glimpse of his face, he leads to your glory and majesty.
- 4- When the shining moon is contrasted to his face it loses its shining, but the shining of the face of Muhammad does not decline.

CONCLUSION AND DISCUSSION

The conditions of political environment and Emirs' interest towards reputation were the reasons of Abu-nuas's return to eulogizing. He used strict and complex words for describing and praising his subjects and shows his skills and expertise in choosing a weight for his poems and its structure and in addition to normal and simple words he applies deep and complex words too. Some of eulogies of Abu-nuas return to traditional methods of Arabian poetry in the era of ignorance in describing ruins and after that descriptions of the subjects are explained. He praised caliphs such as Aaron in this way; because he is aware that Abbasid caliphs held the culture and poems of the previous eras very important. Abu-nuas's methods of eulogizing are different between his friends, acquaintances, governmental authorities and ministers and etc. he started his eulogies with descriptions of the unfaithfulness of the subject, separation and reminders of young hood and after that, starts to praise his subject and in this regard, we can claim that he has intended for innovation in Arabian poetry. His language is also different for eulogies; when he praises Aaron Rashid he uses a stronger and steady discourse because he is afraid of the glory of Aaron and he also eulogizes lower level kinglets and his friends under a simpler and more comprehensible language. Exaggeration in praise and lack of true emotions and feelings in his eulogies are among other characteristics of Abu-nuas's eulogies.

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A Review of Behavioral and Ethical Manners of Grand Islamic Prophet Muhammad (PBUH)

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ABSTRACT

The man always follows a pattern in his individual and social manners. Sometimes these patterns due to enjoy from valuable features can be a good guide facing human life but in the meantime some people because of mistake reasons in modeling, face with the deviations and distortions in their lives. The best and most appropriate model according to the Holy Quran and religious leaders, the best and most appropriate pattern is the "The Islamic Holy Prophet Muhammad (PBUH)."Certainly following him can guide human into a better worldly and otherworldly life .today's human is more than past has need to more comprehensive and inclusive patterns which follow and apply them in his life and favorite rationality and logic and accepts the rule of religion and religious promoters in order to spiritual light sheds light on their hearts and according of their training pay attention to self-improvement and correction and refining the soul. This paper indicates some dimensions of ethical behaviors and moral tradition of Holy Prophet Muhammad (PBUH).

Key words: Holy Prophet Muhammad (PBUH), Lifestyle practical ethics, The Holy Quranic verses, Hadiths.





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INTRODUCTION

Success in life depends on the use of the proper model. Trying without a good pattern, don't have right results. Selecting a proper model has is effective in small and large moral behavior such as dressing, eating, family behaviors, socialize with people and other great cultural, advertising, struggling works in the life.

Today's developed society needs enlightened by spiritual lights and ethics and free themselves from darkness of misdirection. Islamic societies are urgently needed to religious values and return to moral principles. And seriously, we can say that the requirement of the rule of religion in today's world is the development and institutionalization of ethics in different classes of people by modeling of moral Lifestyle of Holy Prophet Muhammad (PBUH).

Of Holy Prophet Muhammad (PBUH) is the most perfect moral example to the world of humanity. Because his being pattern is approved by God. The Holy Quran introduced Muhammad (PBUH) as Muslims behavior and ethic pattern. " لَقَدْ كَانَ لَكُمْ فِي رَسُولِ اللَّهِ أُسْوَةٌ حَسَنَةٌ لِمَن كَانَ يَرْجُو اللَّهَ وَالْيَوْمَ الْآخِرَ وَذَكَرَ اللَّهَ كَثِيرًا " "surely following you prophet is the best method, for those who are believing with God and those doomsday and those who very much mentions Allah (Ahzab, 21). Life of Muhammad throughout adorned with moral virtues and attributes of the good and beautiful and good temperament and orientation is outstanding and great glory honorable and noble character shines through them. Certainly his God trained and educated with the best way and protected him against evil and bad treats which exists in that environment. He was adorned with all of the mood and good morals. This is why God says in the Qur'an describes:

" وَإِنَّكَ لَعَلَىٰ خُلُقٍ عَظِيمٍ " certainly you have huge morals and behaviors" .(Ghalam, 4).

That is because Muhammad is an outstanding example of human perfection and is a competent and eminent leadership for Muslims. And God has ordered us to follow him and follow his behavior and speech to reach satisfaction of our God.

Personal and social behavior of Holy Prophet Muhammad (PBUH) was so perfect and superior. He clarifies for us all rights of behavior people toward each other, social and individual behavior and the best way of living, so that in the early days of the Islam have raised some people such as Salman and Abouzar. Because of this great moral which is confirmed by the holy Quran, Muslims have a duty to follow his individual and social mood and character and they put this great and holy prophet as their model. In this paper we are trying to provide a short report from this big character by take attention to ethical behavior of this prophet during his life that are obtained from Quran, traditions and history books

On this basis, the main objective of this study is review and explanation training lifestyle and moral virtues and greatness of the Prophet (PBUH).

Examining of concepts

A: The word sire (lifestyle): in Arabic language Sire is coming from Sir. Sir is means go, walking. Sire is based on **فعله** and **فعله** in Arabic refers to type. Sir means going and behavior, but Sire means type and the kind of behavior.

In fact **سيره شناسی** refers to style logy. The cognition of "principles, styles and techniques." Which each person have in its behavior and morals.





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B- The word "ethics" (اخلاق): "ethics" is the sum of خلق "mood" which means mental and spiritual traits and in the term, according to Imam Khomeini words: A state of the soul which invited the man to action without thinking for example a person who has the mood "generous" this mood forces him to the bounty, without making preliminary to do it. in the common customs of society and the Islamic republic ethics involves: good traits, virtues and adornments of the inner. generally, Islamic ethical discussions are consolidation and strengthening of positive works and fading negatives. and these good manners come from holy Quran and Sunnah of the prophet.

C: individual Sire (lifestyle) of the holy Prophet (PBUH)

The ethical and behavioral lifestyle of everybody would be indicated in various forms. Individual morality is sometimes revealing personality traits. Prophet Muhammad (PBUH) in his personal morality had a certain way that some of them are mentioned:

Childhood and gracious behavior

Mohammad (PBUH) despite of his peers which had unkempt hairs and dirty eyes always arranged his hairs as an adult and kept clean his head and face. He was never greedy to food and other edibles, his peers were eating hurrying and flustering and sometimes snatched the food bites from each other but he was satisfied with a little food and avoids the greedy to eating. In all circumstances he was shown a dignity over his age. He was never says about hunger and thirst. He was always honest and never lye even in the childhood. Since he had lost his father he was living with his kind uncle AbouTaleb. AbouTaleb says that I never heard a lie word from him and never saw a wrong work and ridiculous laugh from him. He was humble all the time.

The simplicity of the life of the Prophet

Mohammad (PBUH) had selected simplicity in his life, in everything such as food, clothing, and housing and in socializing with people his manners was simplicity. He was using the simplicity in all the dimensions of his life. The principle logic of the prophet was this: simple, popular and unaffected. He was like poor people far away from luxuries and extravagance, profusion and formalities. When some of the wives of the prophet requesting him for giving them some obtained trophies he were upset and replied that: My life is a simple life if you are going to live with me be patient if not I'm ready for divorcing.

One the prophet entered the home of his daughter Fatima he saw that she hung curtains and a bracelet is at her hand, the prophet get back without saying anything. Fatima understood and soon sends the curtain and bracelet to her prophet and sends messages that consume them in any way is good for you.

Worshipping

According to holy Quran the sole purpose of human creation is worship. God states: "وَمَا خَلَقْتُ الْجِنَّ وَالْإِنْسَ إِلَّا لِيَعْبُدُونِ" Jinn and human are not created for anything except for worshipping God (Zaryat, 56). Muhammad (PBUH) was involved in God worshipping more than everybody. The most eminent feature of Muhammad (PBUH) was devotion and being servant for Allah. Love to worship was in the depths of his heart and was immersed in the love of God and was mortal in the worshipping of God such that the worshipping had been placed in his nature and was became a basis of his existence. The greatest kind of his worshipping was that in all the time he surrendered his soul to the Lord. Certainly surrendering the soul and nature is the best and the most beautiful portray of the religion. God states: "وَمَنْ أَحْسَنُ دِينًا مِمَّنْ أَسْلَمَ وَجْهَهُ لِلَّهِ وَهُوَ مُحْسِنٌ" the religion of someone who is sincerely surrenders himself to God is better than everybody while he is benefactor (Annesa, 125).





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He was feared of God in all circumstances and always mentioned for the forgiveness of him and was saying that: I swear to God, I would ask forgiveness before God more than seventy times each day and come back to him by repentance. And holy prophet was approaching to God with prayer, fasting and recitation of holy Quran. He was saying: Human actions, comes before the Lord on Monday and Thursday, I like when my actions come to the Allah I would be fast. the prophet(PBUH) in the nights was worshipping and in order to applying the verdict of Allah 13 fulfilled 13 Rakat prayer each night. Since the God offered to him:

"وَمِنَ اللَّيْلِ فَهَجَّدْ بِهِ نَافِلَةً لَكَ عَسَىٰ أَنْ يَبْعَثَكَ رَبُّكَ مَقَامًا مَّحْمُودًا"

Get up in the night and recite prayers, this is additional duty (in addition to the five prayers) for you which (in the light of this practice) bring you the God a praised rank (Alasra, 79).

Also in the first Sura Muzzammil instructions were given to the Prophet was that pay to worship half of the night, or a little less than half or more than half. "يَصْنَعُهُ أَوْ انْقُصْ مِنْهُ قَلِيلًا" (Muzzammil, 3). In the same chapter, he addressed the O Prophet! Your daily commute long effort, you should have worship in the night to close your heart to Allah. As the night passed by the Prophet (PBUH) would rise from the bed and after taking ablution and recite a few verses of the Quran and the brush, he was worshipping at a corner and was tearing. Some of his wives who saw him in this case were saying: why you are tearing you are not have any sin? He would reply: Whether I'm not be thankful to God? He trembled during prayer and if prayed solely lengthened the bowing and prostration but when performed the congregation prays was very ordinary and simple. He ordered to one of his followers who was became the Imam of the Muslims: when you are prying with the people try to recite a small Surra of Quran after Hamd Surra and do not length the prayer. Prayer of the Prophet (PBUH) was the shortest and most perfect prayer. When he began the prayer after saying "الله اكبر" he would say immediately:

"بسم الله الرحمن الرحيم". Prophet eagerly waiting for prayer time and was taking care of his own prayer. When the time came for prayer he would say to his Moazzen: hey Bilal happy us by saying Azan. He preferred the prayer to anything and when the time of prayer came it would seems that he did not know none of the people and the wife, kin and his friends.

Dressing

Islam commands the Muslims to wear clean and beautiful dresses. We can have different dresses that are obtained by the solvent property. The God likes to see the impacts of blessings that bestowed to his servants. So wearing the beautiful dresses causes to pleasing of the Lord. The prophet was dressing from any clothing that he owned such as robe, shirt and cloak. The most of his clothes were white and said: cover the alive with the white dresses and bury your dreads in it. Imam Sadegh said that the holy prophet was reluctant to wearing black clothes yet in three things: turbans, shoes and cloaks. He dressed any clothes that offered to him and he liked the green clothes. He was used cotton clothes very much. Imam Ali says that: Wear cotton clothes cause it is the cloth of our holy prophet and sometimes he was used expensive clothes. King of Rome sends a sheepskin coat with silk buttons to the prophet, and he dressed that. When dressed a new cloth he was saying: Thank God for giving things that I can adorn myself by them.

The holy prophet (PBUH) whenever dressed a cloth or Aba or a cloak was saying: my lord I wants you to give me from goodness of things which this cloth has been created and refuge to you from the evil which this cloth has in itself. The prophet (PBUH) said to Abouzar: everybody who robs his garment on the earth from arrogance the God not forgives him. And it is a tradition that for dressing a cloth first begins from the right and for taking off from the left hand.





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Tooth brushing

Oral and dental health is an important factor in ensuring health. Considering this issue is God's command such that the holy prophet (PBUH) .I was instructed to brush by my God which I afraid that I was afraid to be an obligatory action. The prophet took a special attention to brush such that always his blessed teeth were clean and white. And he also encouraged his friends to brush. There is several times in a day which is a Sunnah a Muslim must take brush. The holy prophet (PBUH) says: I would command to each Muslim to take Sevak for every prayer if I was not hardness to my Ummah.

The first thing which the prophet has done before entering the hoe was taking brush.as Hazrat Aisha the wife prophet narrated and this narration had come in Sahihe Muslim the prophet said: if you entered the home firstly take Sevak in order to carry out the tradition of the prophet. Total times that Muslims would Sevak Sunnah in a day are not less than twenty times. For example in the time of doing daily 5 prayers,Ravateb prayers, before noon and Vatar prayers, while returning home, before Quran recitation, while changing oral smell, waking up from sleep, ablutions, ... taking Sevak is a tradition. The holy prophet (PBUH) said: Sevak cleans human's mouth and causes to God's satisfy.

Eating customs

The holy prophet(PBUH) at the time of eating was saying: Praise be to Allah who gave us food and water and putted us Muslim.it had come in Hadis that the prophet while eating sat on his knees and was eating from each foods that were be allowed from the God: he very liked honey. When ate fatty foods was drinking less water. He would not eat alone as far as possible. While eating offered his mouthful to the someone who was beside him. Never criticizes the food if had appetite would eat otherwise he would not eating. One day brought him a hot food he said be patient until cooled and its eating be possible. Also he said: blowing to the food destroys its blessing. Hand must be washed before eating although to eat with a spoon. Because holy prophet was saying: Washing hands before and after food takes off the grief and increases eyesight. The prophet Muhammad said to Imam Ali: while you are eating say **بِسْمِ اللَّهِ** and when you are finished say **الحمد لله** because there are always two guards that are writing for you reward until you finish the food. Also says to him: always start eating by salt and finish by salt since the salt is healing for seventy illnesses.

Use perfume

In the religion using perfume and being scented is highly recommended. Prophet (PBUH) in every corner that passed the smell of his perfume was in the air for a long time. He says: the fragrance strengthens the heart. He always using perfume Imam Ali says: Prophet (PBUH) had spent more than food for the perfume.

Cleanliness and hygiene

The great prophet in addition to soul cleanliness was a model for cleanliness of body. He had great interest to cleanliness and was unique in the cleanliness of the body and clothes. In addition to ablution customs, most of the days he washed his body and considered as worship.

Prophet (PBUH) several times in a day, especially at night before sleeping and after waking up, was carefully brushing his teeth. His white garment, which covered up his legs was always clean. He washed his mouth and hands before and after males and avoided eating the foul-smelling vegetables. Ivory comb and scissors and Dan Kohl and mirrors and brushes were his journey toys. His house with all the simplicity and lack of luxury was always clean. He always was focusing that take out the trash in day and was not at home until the night. Cleanliness of his body was





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coordinate with his holy purification of the soul and recommended to his followers that clean their homes, heads, bodies and clothes and forced them to washing their self and using favors especially in the Friday and then attend the Friday Prayers.

Cleanliness has a special role in human life. The prophet (PBUH) encouraged his Ummah to cleanliness and says that: cleanliness is a component of faith. Examples of Cleanliness methods of Prophet include: 1-taking off fingernails: it is one of the customs of Islam that the Prophet (PBUH) has recommended it so many. He each Friday before leaving the home cut his fingernails and said: taking off fingernails destroys great pains and increases the sustenance. Also offered to men that cut the fingernails from the bottom and to women leave a little longer that is their graces. 2- Washing hair and beards: Prophet (PBUH) were washing his hair and beards with Seder and said: this is enough for scented my hairs. Prophet took attention to cleanliness very much .sometimes put his toothbrush behind the ear to be available. In the summer has was boiling his clothes in the pot. A day he saw saliva has fallen in a corner of the mosque immediately brought palm fiber and cleaned the mosque.

Order and discipline

Discipline principle is one of the remarkable practical logic of the Prophet (PBUH).such that it was available in the all aspects of his life. And as the existence is regular, the Prophet (PBUH) also was disciplined. Holy Prophet was the model of order and discipline. The divine and exact order was reined on all his aspects and behaviors.

It is narrated from Abouzar which the prophet says: a wise man required having some special times; times for God worshipping, times for calculate and handle your actions, times for thinking about things which God has bestowed to them and times for solitude for him and taking advantage of the solvents. Thus duty of a wise man is order and planning and the lifestyle of the prophets was based on discipline and planning.

The capacity to listen to criticism and hate eulogy and flattery

The prophet sometimes faced with protests of some followers but without being angry he took their attention .he hated eulogy and flattery and was saying that: Sprinkle soil to the face of eulogists and flatterers. He loved tight works. He was willing to be everything tight and fix. As far as when his loyalty follower Sahd ebne abi Mahaz died and he buried himself and he moved and tighten rocks and models by his hands and then said: I know that it takes no longer that these are destroyed but God likes that every human when wants to do a thing it must be tight and fix.

B-social Sire of THE PROPHET (PBUH)

Prophet (PBUH) was the height of great people and his ethics was definitely unique. Interpretation of the Qur'an indicated that his behavior and ethics associated with his personality. One of the most important factors in the spread of Islam and the secret of the popularity of the Prophet (PBUH) was his pleasant ethics. Imam Ali says that: such behave with people that if you would die they for you and if live with them, they would love you. This behavior, ethics and practice of the Prophet (PBUH) had an important role in attracting people to religion and religious authority. In narration a hadithes that has come with the word كان usually they are indicating the constant lifestyle of Prophet. Anas ben Malek says that: «كَانَ رَسُولُ اللَّهِ أَحْسَنَ النَّاسِ خُلُقًا» the prophet was the best human in terms of ethics. Prophet was a popular figure of world humanity that the world has not seen yet such popularity in human. He was such popular that while making ablution, his followers for taking the extra water of his ablution they made competition and sometimes they were clashed. Urwah ibn Mas'ud who had come from Quraysh for dialogue with the Prophet in the adventure of "Hodaibia Solh" had reported to Ghoreishian such: I've seen great kings and I've seen big powers like the power of Kasra, roman emperor and King of Abyssinian. But I not had seen the situation among his people, like Muhammad. I had seen by my eyes that his followers didn't allow that any drop of his





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ablution shed on the earth and they divided it among themselves for consecration. If a hair of Prophet Muhammad (PBUH) falls down they pick up it immediately so the leaders of Quraish must be thinking about this. This is a small popularity of prophet (pbuh) in the society. In addition of attention and assistance of God, the mystery of his popularity lies in his moral character and behavior. The following are examples of social ethics of the Prophet mentioned:

Humility and modesty

There are fewer rulers who take the power and authority while he is humble and modest. Especially in the last periods which vanity and pride was one of the obvious rules and characters of rulers. But our prophet was far away from this common character and humility and modesty was one of the evident characteristics of him. One of his objectives of prophecy was destroy the ugly tempers of pride which spread out among the people. Most of the time that advised his Ummah said: anyone who has a particle size of pride in his heart wouldn't enter to heaven. The day of the conquest of Mecca a man who had fallen out of fear and tremor came beside the prophet, and the prophet said to him: Relax, do not worry I'm not king, Surely I am the son of a Qureshi woman who ate dried meat. The Prophet (PBUH) spent all his life in humility and modesty. Once prophet came among his followers and relied on his rod they stood up for respect. He said: do not get up like the Persians who stood up as a bow of some people. And he also says: Do not exaggeration in praising me as Christians who was exaggerated in praise of Jesus son of Mary, I am only a servant of God call me only: the prophet of God.

Mercy and compassion

A distinguishing characteristic of divine prophets was burning and melting for guidance and salvation of man. If we make a comparison among the virtues and qualities that people benefit from them we conclude that no trait is honorable and higher than mercy and compassion. The mercy is one of the most striking traits of Islam. Almighty God introduces his prophet Muhammad (PBUH) by this feature and says to believers:

لَقَدْ جَاءَكُمْ رَسُولٌ مِّنْ أَنْفُسِكُمْ عَزِيزٌ عَلَيْهِ مَا عَنِتُّمْ حَرِيصٌ عَلَيْكُمْ بِالْمُؤْمِنِينَ رَؤُوفٌ رَّحِيمٌ ":

Definitely has come for you a messenger of yourself which it is difficult for you fall in difficulty he is care for your guidance and he is compassionate towards the believers (altobe, 128).this versus reveals the compassionate of the prophet toward Muslims and praised him .this verse is a definition of a compassionate an kind prophet who is suffering from discomfort and affliction of his nation. Also God introduces his messenger in another verse of Quran:

"فَبِمَا رَحْمَةٍ مِّنَ اللَّهِ لِنْتَ لَهُمْ وَلَوْ كُنْتَ فَظًّا غَلِيظَ الْقَلْبِ لَانفَضُّوا مِنْ حَوْلِكَ"

This is from mercy of God that you are calm and gentle with them and if you had a bad temper and cruel they were scattered around you (Al 'Imran: 159).

The prophet was not ignore of rights of no one and nothing (From Jmads to plants and from animals to humans).and he has special offers and commands for each to respect the rights of each of them. The real value of mercy and compassion is revealed only in human behavior toward their servants. One of his followers say that I never saw that the prophet to strike any of his servants. His recommend toward behavior with servants is that: they are your brothers who God placed them you're subordinate feed them from the foods which you are eating, provide them such clothes which you are dressing, and do not request them difficult affairs that they can't do and help them if get them such affairs. He considered equal employees and employers, servant and server, boss and subordinate.

God in attributes of the prophet says: "الْعَلَّكَ بَاخِعٌ نَّفْسَكَ أَلَّا يَكُونُوا مُؤْمِنِينَ"





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Perhaps you will destroy yourself because they will not believe (shohara, 3).

Religious melting and burning is attributes of messengers and it is necessary for each Muslim to do it. Muhammad (pbuh) says: The one who has no mercy for mankind, God's mercy does not apply to him.

Joking and laughing face

One of the pleasures is joking which has an important role in happiness and joy of human. Humor is not incompatible with faith. The prophet introduces joking as one of the traits of Muslims he says: *المؤمن دعب لعب والمُنافق قطب غضيباً* Momen is affable and joker but hypocrite is moody and angry. With the advent of Islam in the Hejaz some Muslims were avoiding of laughing and believed that living is only prayer, fast and litany. The prophet fought with this deviation and recommended mediation.

It is narrated that one day the prophet and Imam Ali were sitting beside him and was eating from bags dated in front of them, the prophet wanted to have a joke with his cousin, therefore when he was eating he put the kernels of dates to Ali's bag, when they have been feed Prophet said, let's see which of us have eaten more, when they saw the bag of Imam Ali had more kernels, the prophet laughed but Imam Ali who understood the joke of the prophet said: of course it's evident you were so hungry that you have eaten the dates with kernel. They both laughed from this answer. The Prophet (PBUH) was joking with people but in a right manner not vain. His aim from these jokes was making happy the people and reducing his splendor and grandeur in order to people be more comfortable and more familiar. Imam Sadegh stated that one of the aims of joking of the prophet was making happy the people not scorn others.

Gentle temper

When we say that the prophet was gentle and a leader must be gentle our intention is that he was gentle in the personal issues not in the principal and general issues. In these issues he was totally serious and was very rigor. In the time of Makkah conquest a woman who belonged to Quraish aristocrats was committed a theft. According to Islamic laws her hand must cut off. When the crime is proved the sentence must be applied. Since this woman was from a famous family some advices and mediations to cancellation of applying the sentence was beginning. But he said: It is impossible. You are wanting me to violate the Islamic law? If she was a forlorn woman all of you wanted that she must punished. The God's law is applicable for everyone. He didn't accept at all intercessions and mediations and said I swear to Allah if my daughter committed to theft h cut off her hand and I don't make anyway difference to applying the God's law among the people. Then the prophet wouldn't even softness in principal issues yet he was so gentle in personal affairs. And was very amnesty and clement.

Consultation

God says: *وَشَاوِرْهُمْ فِي الْأَمْرِ فَإِذَا عَزَمْتَ فَتَوَكَّلْ عَلَى اللَّهِ إِنَّ اللَّهَ يُحِبُّ الْمُتَوَكِّلِينَ*

And to do things consult with them and when made decision trust in God because he loves those that have trust to their God (Al Imran, 159)

In the things that have not been issued a special decree from God, the prophet always consults with people and sometimes did prefer people's comment on his comments. In Ohod war the prophet established a council and consulted about this issue that if it is better to go out from Medina city or they remain there. He preferred the opinion of active and enthusiastic young on the other even in his opinion to go out from the city. It is striking after defeat in





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that war, the God said: consult with them again. This is evident that one of the success factors in advancing the goals of the Islamic prophet was consultation with his followers and wise people. He indicated that how can manage the society safety and how can prevent dictatorship which is one of the greatest social pests and causes to despotism.

Forgiveness and amnesty

Another principle which the Prophet (PBUH) was committed in association with other human in personal rights is forgiveness and amnesty. He sometimes when understand that ignoring the crime causes to punishment the offender and his guidance and training he pardoned the person and leaves his rights.

God to the Prophet (PBUH) said: "خُذِ الْعَفْوَ وَأْمُرْ بِالْعُرْفِ وَأَعْرِضْ عَنِ الْجَاهِلِينَ"

Be tolerant toward them and forgive their faults and encourage them to do good things and avoid from stupid (Ahraf, 199).

Forgiveness and amnesty of the prophet was comprised all people such as believers and unbelievers. Thus he didn't revenge from anybody in his blessed life. During the conquest of Mecca when the flag was in hands of Saad ebne Ebade and calls for revenge the prophet commanded Ali to take off the flag from him and call forgiveness and mercy of God for people of Mecca. Then he forgave all the people who had hurt insulted the prophet even those who attempted to kill him. Even forgived Vahshi who the killer of Hamza who previously had issued the command for killing him. And said to him get up and go, hide your face from me.

Honesty and truthfulness

Honesty and truthfulness is one of the good deeds and one of the great virtues of human which have a high value in all divine schools even in human schools. Pure human nature requires that a healthy and balanced human must his tongue and heart be the same and also his interior and apparent must be the same and expressed what he is believed. The prophet stated valuable remarks about honesty .he said: not Muslim who is not honesty and do ruse, infidelity and trick with the people or harm and dissatisfied him. He also says: crooks and guileful will be on the fire. Or he says: don't mix milk with water to sell people.it has narrated that one of the sons of the prophet with the name of Ebrahim has died in childhood, solar eclipse occurred shortly after his death the people thought that this is because of the death of Ebrahim. But the prophet immediately gathered the people and said: solar eclipse was not because of death of my son. He thereby preserved people from ignorance and superstition.

The Muhammad (PBUH) and children

Incredibly compassionate behavior of the prophet with children and infants has strange tales. Maybe this is one of the secrets of prophet of mercy. He loved children and was very kind toward them. And played with them whenever gained an opportunity.one day he lengthened his prostration .some asked him after prayer: O Messenger of Allah! We thought that an oracle has been revealed. He answered: my son Hasan was on my shower during prostration I waited to he come down. When Hassan and Hossein were come to prophet he raised and embraced them.

It is narrated that an infant had brought to prophet for naming, the infant dirtied the prophet. His mother and relatives were extremely upset, but the prophet said: let him I will wash my clothes but your cries causes to the child feared. The Prophet said hello to children and said: I do not leave saying hello to children in order to stay this habit after me .He respectfully called the children to the girls gave more recommendation. Respect for women was an admirable work for him. Also in a time that birth of a girl caused to nervousness of fathers as far as their face would





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black from intense of nervousness. Indeed, when the having girl was a disgrace for family the prophet said: daughters are the best children, when the first child is daughter it is a sign of happy welcome of a women. One of the companions of the Prophet was sitting in his service that he was reported: your wife gave birth to a girl. He was upset. The prophet when saw this said: earth is her position, the sky is her canopy and her aliment would given by God. So why you're upset? He is like a fragrant flower that you use it. The mercy prophet had said special offers about children to the parents. From the fair behaviors to kindness, from truthfulness to loyalty, and not cursing and do not oppress them.

The prophet and young people

Youth is an unstable opportunity. The prophet had more focus on seizing youth time and was said: *إِعْتِمِ خَمْسًا قَبْلَ خَمْسٍ؛ شَبَابِكَ قَبْلَ هَرَمِكَ؛*

Value 5 things before 5 things, the youth before old age. The prophet supported the youth and gave them the important responsibilities.now some of these are mentioned:

A young "Zayd ibn Harithah" in was captured one of the wars and handed back to the Prophet (PBUH) he had a wealthy father who came to Prophet to buy his son ,and said to prophet, gave him to me a would pay his ransom. The prophet said: he has his own authority if he wants to come back to you I will give you without ransom.Zayd came and heard his father's speech. Zayd said: I don't come back. Since the prophet had seen his love and loyalty of Zayd said to people besides the Kaaba: I call him my stepson and he gave him his girl of aunts.

He gave a youth by the name Osame the commander of army and ordered to all adults to obey this young youth and said: God damn a person who refuses the Osama's army.

The prophet before going to Madina vommanded a youh by Moshab name. He was a very nice young man from a very affluent family who believed to prophet in Mecca far away from his families his parents took all his things such as his clothes. He dressed a worn garment and was present before the prophet and proved his loyalty and became a martyr in Ohod battle.

Ali ben Abitaleb who was only 23 years old during the migration to Medina was highly respected by the prophet.

Jahfar e Tayyar the Imam Ali,s brother was a young who was the founder of Islam in Africa.

The hospitality

Salman says: I went to prophet's home he placed a pillow which himself used it. Interestingly he did this action for any guests. The prophet had spread the ground cloth for guests and did not go away from the tablecloth until the guest was eating. Once his foster sisters and brothers each came to the prophet separately He respected his sister more than his brothers some asked about this behavior the prophet said: since this sister respected her parents more than others and by the way I'm so like her.

Miqdad ibn Aswad said: I went along with two of my friends to some followers of the prophet and we said: we are passengers and tired do you accept us, anybody accepted us. Finally we went before the prophet he immediately took us to one of his homes which three goats were kept there, he said: grab their milks and drink.





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Some of the guests after feeding didn't get out and they were talking and the prophet tolerated until this verse had come:

" فَإِذَا طَعِمْتُمْ فَانْتَشِرُوا وَلَا مَسْتَأْذِينَ لِحَدِيثٍ " spread out when ate food without involving in talking and discussion(Ahzab,53). When you became a guest of the prophet after eating food dispersed because your irrelevant sittings causes to preventing the prophet from doing his personal and social work and hurts him.

Simplicity of religion

God says in holy Quran: اللَّهُ بِكُمْ الْيُسْرَ وَلَا يُرِيدُ بِكُمُ الْعُسْرَ God desires for you simplicity and does not want hardship and difficulty for you (Baghara, 185).

It is narrated that Mahaz ben Jabal was the Imam of prayer in one of the masque of Madina and he was recite big Suras of the Quran.an old man came to the prophet and complained: big suras of Quran which Mahaz recites are very difficult for me and thus follow up Mahaz is very difficult for me. The Prophet was angry and said: there are some people that make deviations in thoughts of others each of you who want to be liturgist must read small suras of Quran because all kinds of people gather in prayer that among them are some people who are weak or old.

Aisha the wife of prophet narrated that a one of her childhood friends grew up and married .one day Aisha saw her which was pale and sad and wore old clothes. She said I asked her why you are such sad and dressing these old and torn clothes. She replied that her husband didn't pay attention to her since he fasts the days and all night he prayers .Aisha said: I reported this to the prophet. The prophet after saying this report was very angry and immediately called that person and said to him: I also prayer in the nights and fasting some days and other days I'm eating and drinking after that conversation the prophet commanded to that person to go and pay attention to his wife .that man also said: one day I was fast and saw the prophet e said to me go to your home and break your fast and involve to your wife and life.

Balance is one of the principles which Quran had special attention to it evident in across life of the prophet and in all of his actions and behaviors. Imam Ali says about the prophet: the manner of the prophet was moderation.

Speaking

Prophet (PBUH) was silent most of the time, never speaking except when necessary and never interrupts someone's talking. When he wanted to talking smoothly opened his mouth with a smile, his words were eloquent and sweet, his words were short and they were related to each other ,he stated his expressions clearly in order to listener can remember them. Never instead for speaking used his eyelashes or eyes or someone or something. And when he was in front of audience he was did not look into the corner of his eyes. His sermons were always brief and never expressed vain words. Never repeats his words except for to enter the house of people or calling special persons.

Companing with believers and house of the prophet

The people around the prophet were all good people. And from the view of the prophet the best of them were those who were the most benevolent for the people. And the most greatness of them was those who were most thinking about people. He was call his followers by the best name and didn't interrupt nobody talks. The assembly of the Prophet was patience, modesty, honesty, and trustworthiness. Dignity of the people was not broken and if someone did a mistake it was not told elsewhere. The people treat with each other with justice. And their behavior with each other was as a piety friend. They maintained respect for adults and were kind toward children and protected the





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strange people. He did not stretch his legs in presence of the others and when visited everyone he was overtaking in saying hello. Everyone who entered in his assemble was respected. Sometimes spread his cloak for him for sitting.

Cooperation and Collaboration

"Cooperative" means to help and support each other and is cooperation in each works. The prophet recommended the people to cooperation and assists themselves and he also participated in general works. When the recommend of the prophet for building the Al-Masjid al-Nabawi (the masque of the prophet) was confirmed by all the people the prophet just like the other people gathered stones for building. And in the Khandagh (DITCH) war after organizing the army for drilling ditch he took pickaxes and went to a corner for drilling. And also Ali transported out the soils. In one of the travel group for cooking everyone took a mission to do a part of cooking. The prophet also went to gather some firewood when his followers wanted to prevent he said the God is not like to see his servant among people who made some privileges for himself.

Family manners of the prophet

The family is one of the most important areas of life the family is considered as simple and summarized of society. And is the principal core of social life which humans mostly learned practices and treatment of life. Because, the life is starts from there. Hence, it is considered the most fundamental social institution. The change in this institution changes all networks of human relationships. The behavior of everyone in the house with his wife and relatives in addition to indicating intellectual and moral character is effective on the family members. Prophet (PBUH) had the highest ethics in the house. The following are examples of the moral tradition in the home of the Prophet referred:

Family Assistance

Honest and intimacy between husband and wife and the family members are much deeper and are more beautiful than a friendship between two friends. The virtues of a pious man are that helps his spouse and family member's in house chores especially heavy duties. The prophet was worked in the house such that he was patched his clothes and shoes, opened the door, grab milks from sheep and camels .flour the wheat along with the maid of the house. And if the servant was tired he helped him. Chopped the meat with his family. And he went to the market and bought his stuffs. The Messenger of Allah (PBUH) with all the problems that had such a revelation, advertising and invited religion, war and peace, but also not forget household duties. The prophet went to the house of his daughter Fatima and saw that Fatima and Imam Ali was mill wheat he went to them and said them who of you are more tired Imam Ali said: Fatimah is tired the prophet said to his daughter stand up. She stood up and the prophet sat on his place and helped Imam Ali in milling.

Dividing time at home

Human behavior at home with his wife and children reflects his personality. The kinds of behavior with family members and relatives have positive and negative effects. Prophets (PBUH), while positive interactions with family, were divided his time in the house into three parts: a part to God which he performed prayer and worship, a part for family members accustom and dialogue with them and meet their spiritual and emotional needs ,and assigned the other part for himself. Since in the time of his presence in the home some of the family members were also present he assigned some of the homes time to himself .he was searching for addressing the people's affairs. Imam Hussein about this said: « فَيَرُدُّ ذَلِكَ عَلَى الْعَامَّةِ وَالْخَاصَّةِ وَلَا يَنْخَرُ عَنْهُمْ شَيْئًا جزءٌ لله عزَّ وجلَّ و جزءٌ لاهله و جزءٌ لنفسه. ثمَّ جزءٌ جُرئُهُ بَيْنَهُ وَ بَيْنَ النَّاسِ، فَيَرُدُّ ذَلِكَ عَلَى الْعَامَّةِ وَالْخَاصَّةِ وَلَا يَنْخَرُ عَنْهُمْ شَيْئًا





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When the prophet entered the home divided his time into three parts: first part to worship, second part to family and third part for himself. Then he divided his own time between himself and people and answered the adults and children in his time .and do not denied anything from them.

Providing family needs

One of the factors in the disintegration of the family and collapse of its framework is ignorance of some men in providing needs of the family. The prophet was said in this regard: the best of you is someone that is better for its family. And I'm the best among you for my family. In another narration has come: the best man is the man that behaves better for his wife and I'm the best in this regard. This attention to the family is because of is the man's wife and children are fideisms of God. And are completely surrender before him. As the Prophet said: my families are like captives and the best of you is someone that behaves well to captives. Also the prophet was said: what a man spends for his family is charity in the way of God. Or in another narration someone who tries for providing needs of the family such as Mujahid in the way of Allah. In another narration the prophet said: every human who spends foe family the God for each garbled returns he seven-hundred times reward. Of course this not only for material needs but also for meets spiritual and religious. Otherwise, if a father only to meet the material needs of his family and neglect their religious and spiritual growth, not only he had not done a good job , but he have to be responsible about them.

Eating with the family

According to Islam, the food in the house and not only your taste is desirable. If man eats the same food from home like others, such a person is a believer is eats according to his family but a hypocrite his family are eating according to his wanting. Followers of Allah were eating with their family and were sitting on a tablecloth. And if anyone does not present to eat with family member he has arrogant spirit and indicating his ignorant ethics. The prophet while that had no excuse about the quality of the food and was ate of what God has made lawful was sat on the earth by the others.

Family ethics

He was kind at home .did not use any violence to his wives. And this despite of Mecca people behaviors. Tolerated abuse of some of his wives. As far as suffered from this tolerate. He recommended to good relationship with wives and said that everybody have good or bad features the man not consider the bad features of his wife and leave his wife. For if a feature is not good the other feature may be good and he must consider both .he was extremely kind with his children and grandchildren he was compassionate about them placed them on his lap and on his shower.

Simple life but full of spirituality

The messenger of Allah had selected simplicity in his life and slept on the mat. His bed was filled with the straw of palm .he slept on the right side. And placed his right hand under his face. When he got up went to prostrate. Respected everybody who entered to his house.

According to Ghazali: The Prophet Muhammad taught by Allah all of the good behavior in the past and future and all of which causes to redemption of the world and the hereafter.





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CONCLUSION

What we reviewed was some of the vast treasures of human virtues and a drop of the big ocean of prophet's ethics. The prophet was trained according to God's special and general guidance. As he said: « أَكْبَنِي رَبِّي وَ أَحْسَنَ تَأْذِيْبِي ». God taught me civility and what good manners he had taught me. Hence the God introduced the prophet from the first of the humanity to the by the end of the creation of humanity as the better human and a model for humanity. Because the prophet is not only a symbol for a special time, generation, a nation, and a location but he is universal and permanent symbol for all the people in all times.

In this paper has tried to prove for those who are searching for a better model in the today's post-modern world which they can not found any model better than the prophet Muhammad (PBUH) in social and individual living. So we must take him for ourselves to free the universe which is had caught in new ignorance.

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Relationship between the Quality of Service and Customer Satisfaction

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ABSTRACT

The purpose of this research was examination the relationship between the quality of service and customer satisfaction in the hospital of Sardasht city. Materials and Methods: this research has been done as cross-sectional in 2014 over 385 hospitalized patients in the hospital of Sardasht city. SERVQUAL Parasuraman et al questionnaire (1998) were used for measuring the quality of services and for measuring satisfaction of customers Walfried et al questionnaire (2000) were used. Comments of 7 professors of management were used to determine the validity of the questionnaires and the reliability of the questionnaires were calculated by using Cronbach alpha that indicated that the questionnaires are highly reliable. Pearson correlation coefficient test and the step by step multivariate regression were used for analyzing data. Findings: results indicated that there is a positive and meaningful relationship between quality improvement and its dimensions (tangibles, reliability, responsiveness, assurance, and empathy) and customer satisfaction of hospital of Sardasht city. Also results of step by step multivariate regression analysis showed that dimensions and variables of quality of services predict almost 50% of variance fluctuates of customer satisfaction. Conclusion: with respect to the relationship between the quality of service and customer satisfaction managers and hospital officials of Sardasht city should thinking about increasing the quality of service and thereby increase customer satisfaction.

Key words: Service quality, customer satisfaction, responsiveness, assurance, empathy.



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INTRODUCTION

In contemporary environment businesses have to develop different strategies to survive in long run. To gain long term success in business, main focus is always towards customers (Sandhu et al, 2013). Customer satisfaction does have a positive effect on an organization's profitability. Satisfied customers form the foundation of any successful business because customer satisfaction leads to repeat purchases, brand loyalty, and positive word of mouth. There are numerous studies that have looked at the impact of customer satisfaction on repeat purchases, loyalty and retention. Many researchers point out the fact that satisfied customers share their experiences with other people to the order of perhaps five or six people. On the contrary, dissatisfied customers are more likely to tell another ten people of their experience with product or service (Angelova & Zekiri, 2011). Accordingly, the prestigious Malcolm Baldrige National Quality Award recognizes the role of customer satisfaction as the central component of the award process (Naik et al, 2010)

One of the major factors which influence the customer satisfaction is the quality of service; Quality of service is not only an important factor of customer satisfaction in manufacturing industries but also in service firms (Malik et al, 2012). Measuring service quality is difficult due to its unique characteristics: Intangibility, heterogeneity, inseparability and perishability. Service quality is linked to the concepts of perceptions and expectations. Customers' perceptions of service quality result from a comparison of their before-service expectations with their actual service experience. The service will be considered excellent, if perceptions exceed expectations; it will be regarded as good or adequate, if it only equals the expectations; the service will be classed as bad, poor or deficient, if it does not meet them (Naik et al, 2010).

Many researchers believe that due to risky nature of health care it has unique position in comparison with other services (Haghighi et al, 2010). In the 2000 the main aspect of WHO supervise the performance of the health system and emphasizes that governments should ensure that their health care system provides the most appropriate services for the population (Ahmadi et al, 2010).

Therefore customer service in health care organizations has become one of the most important objectives. According to the humanitarian nature of medical services patient satisfaction is critical for profitability and viability of hospitals yet it is important for increase the efficiency, effectiveness and better treatment outcomes (Haghighi et al, 2010).also increasing rate of healthcare costs and resource constraints has raised the hospital as one of the most important and yet most expensive health care organizations which its management requires efficient management, knowledge, expertise and innovative thinking. Effective management, through lower costs, increase productivity, improves performance and ultimately improve the quality of services provides satisfaction and confidence of clients and patients. Given the importance of two categories of service quality and customer satisfaction for nowadays organizations especially hospitals this research has performed. Thus the main purpose of this research is the examine relationship between quality of Service with customer satisfaction of Sardasht city.

Service Quality

Service quality is a complex, elusive, subjective and abstract concept. It means different things to different people. The most common definition of service quality is the comparison customers make between their expectations and perceptions of the received service (Parasuraman et al., 1988; Grönroos, 1982). Service quality hold that this is the result of the comparison that customers make between their expectations about a service and their perception of the way the service has been performed. Service quality is defined as the degree of discrepancy between customers' normative expectation for service and their perceptions of service performance (Kheng et al, 2010)



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The achievement of the quality of services is a goal and a marketing tool at the same time, because achieving high quality services leads to achieving the clients' satisfaction, so companies must measure the quality of services (Al Qudah et al, 2013). Among the models for measuring service quality, the most acknowledged and applied model in diversity of industries is the SERVQUAL (service quality) model developed by Parasuraman et al (El Saghier & Nathan, 2013). In 1988, Parasuraman and others examined the sample of the service quality which was improved in 1985. These researchers developed a sample called SERVQUAL for measuring the quality of service. This sample is based on perceived quality; this study has identified that there is a possibility to ignore the original ten dimensions of quality of service, or there is a possibility for the lack of a high associational relationship between these dimensions, so that it is retrieved within the form. SERVQUAL evaluates these five distinctive dimensions; these researchers have also felt that these five dimensions are able to access the aspects of the original ten dimensions, and these dimensions are:

- 1 - Tangible things: material facilities, equipment, tools and the appearance of the workers and employees (Al Qudah et al, 2013).
- 2- Reliability: this refers to the ability to provide the exact required service according to given specifications and conditions (Mohammad & Alhamadani, 2011).
3. Responsiveness: the inclination and willingness of the employees to serve customers quickly and properly (Mohammad & Alhamadani, 2011).
- 4- Assurance: feelings of trust and confidence in dealing with the organization. This reflects the workers' knowledge and experience and their ability to build self-confidence as well as confidence in the customers themselves (Mohammad & Alhamadani, 2011).
- 5 - Empathy: understanding the customers' personal needs, taking care of them individually and showing them all sorts of sympathy and affection, looking at them as close friends and distinguished clients (Mohammad & Alhamadani, 2011).

Customer Satisfaction

To succeed in today's complex and competitive market, researchers believe that customer satisfaction is a key factor. Customer satisfaction is a critical performance indicator (Amoopour et al, 2014).

Customer or consumer satisfaction is an abstract structure that isn't directly measurable. And for this purpose, it must be defined operationally. But there is no a consensus definition in this scope by all researchers. The essence of the various definitions for customer satisfaction that are created is a comparison between the performance of the product or service (according to customer's perception) with a criteria (such as customer expectations) and is the result of this comparison (Afkhami & Torabi, 2010).

Customer satisfaction, which refers to "the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feelings about the consumption experience", is often considered as an important determinant of repurchase intention and customer loyalty (Deng et al, 2010). There exist two conceptualizations of customer satisfaction; transaction-specific and cumulative. Following the transaction specific, customer satisfaction is viewed as a post-choice evaluation judgment of a specific purchase occasion until present date, researchers have developed a rich body of literature focusing on this antecedents and consequences of this type of customer satisfaction at the individual level. Cumulative customer satisfaction is an overall evaluation based on the total purchase and consumption experiences with a product or service over time. This is more



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fundamental and useful than transaction specificity customer satisfaction in predicting customer subsequent behavior and firm's past, present and future performances. It is the cumulative customer satisfaction that motivates a firm's investment in customer satisfaction (Agbor, 2011).

Relationship between service quality and customer satisfaction

Various studies have indicated that there is a positive relationship between service quality and customer satisfaction (Al Qudah et al, 2013; Mohammad & Alhamadani, 2011; Zeithaml and Bitner, 2000; Lee et al., 2000). Muhammad and Al-Hamadani (2011) conducted a study on the customers of private banks in Jordan. The findings suggested that the quality of services is an effective factor in increasing customer satisfaction. And as well as the quality of services was also positively correlated with customer satisfaction. Also the research results that Naik et al (2010) did conduct on consumer retail units in India did suggest that there is positive and significant relationship between service quality and customer satisfaction. Also findings suggested there is a significant positive correlation between the dimensions of service quality (SERVQUAL model) and customer satisfaction.

Research Hypotheses

There is a positive relationship between Service Quality and Customer Satisfaction of hospital in Sardasht.
There is a positive relationship between Tangible things and Customer Satisfaction of hospital in Sardasht.
There is a positive relationship between Reliability and Customer Satisfaction of hospital in Sardasht.
There is a positive relationship between Responsiveness and Customer Satisfaction of hospital in Sardasht.
There is a positive relationship between Assurance and Customer Satisfaction of hospital in Sardasht.
There is a positive relationship between Empathy and Customer Satisfaction of hospital in Sardasht.

METHODOLOGY

The research method is a descriptive-correlation. The population of this research consisted of hospitalized patients of Sardasht city for this purpose, 385 hospitalized patients were selected as samples. The research is used researcher made questionnaire that consisted of two parts. The first part is related to quality measurement questionnaire SERVQUAL services (Parasuraman et al., 1998) that measures 5 dimensions of quality services (Tangibles, reliability, responsiveness, assurance, empathy) and consists of 22 questions and the second part is related to customer satisfaction questionnaire that the questionnaire of Walfried and others is used and consists of 9 questions. Also five-item Likert scale used to measure the research variables. To determine validity of the questionnaire the comments of 7 professors and experts in the field of management is used. Cronbach's alpha was used to measure the reliability of the questionnaire that the value of alpha for SERVQUAL questionnaire was equal to 0.87 and this value for customer satisfaction questionnaire is equal to 0.89. Since the alpha value obtained indicating the internal consistency of items, so we can say that the measuring tools of the research is reliable statistically. The obtained data from the questionnaires of the research were analyzed by using Pearson correlation coefficient and multivariate regression in a stepwise method. The suggested statistical analyses were performed by using SPSS software version 21.

FINDINGS

As shown in Table 3 Correlation coefficient between the quality of service and customer satisfaction (as a whole) is 0.71 which would indicate a direct and powerful correlation between the quality of service and customer satisfaction in a hospital of Sardasht. Also correlation coefficient for the variables of Tangible things and customer satisfaction is 0.88, for reliability and customer satisfaction 0.75, for responsiveness and customer satisfaction is 0.64, for assurance and customer satisfaction is 0.63, for empathy and customer satisfaction is 0.87, that these coefficients indicating





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strong and direct correlation. Step by step multivariate regression analysis methods were used to determine the contribution of the independent variables in predicting the dependent variable. The results of the last step in stepwise multivariate regression have shown in table 2.

According to Table 2 multivariate regression function of customer satisfaction in terms of quality of service as follows;

$$Y=0.132 X1 + 0.155 X2+ 0.113 X3+ 0.086 X4 + 0.167 X5$$

Y: customer satisfaction

X1: Tangible things, X2: Reliability, X3: Responsiveness, X4: Assurance, X5: Empathy

The interpretation of regression function is meaning that the value of Tangible things +Reliability +Responsiveness + Assurance +Empathy in predicting customer satisfactions of Sardasht hospital is 0/167 +0/086 +0/113 +0/155 +0/132 respectively. In other words for every unit change in tangible things the customer satisfaction is changes at least 0.132 unit, every unit change in reliability, at least 0.155 in customer satisfaction, every unit change in responsiveness, 0.113 units in customer satisfaction, every unit change in Assurance ,at least 0.086 change in customer satisfaction, every unit change in empathy, at least 0.167 unit change in customer satisfaction.

In general we can say that dimensions and quality of service variables predict almost 50 % changes in the variance in customer satisfaction and 50 % changes in the variance in customer satisfaction by other factors that were not investigated here.

DISCUSSION AND CONCLUSION

Services and quality of services are the survival characteristics in the era of competition which also applies in respect of research services. Scientific principles and available investigated history, the importance of services, their characteristics were investigated in this research. The objective of this study was examining the quality of services of Sardasht hospital from the view of customers of this part and its impact on customer satisfaction. Results indicated that there is a significant positive correlation between the quality of services and customer satisfaction and this is consistent with the findings of other researchers (Al Qudah et al, 2013; Mohammad & Alhamadani, 2011; Zeithaml and Bitner, 2000; Lee et al., 2000). It means that if quality Services go up as well as raises the customer satisfaction of Sardasht hospital. Therefore, decision makers and policy makers in the organization should be pay attention to this issue and try to improve the quality of services. And in this way attract customers' satisfaction. Also findings suggested that there is a positive correlation between the quality of service (Reliability, empathy, reliability, responsiveness and tangible) and customer satisfaction .And this is consistent with the findings of other researchers(Al Qudah et al, 2013; Mohammad & Alhamadani, 2011; Zeithaml and Bitner, 2000; Lee et al., 2000). It means that if quality Services go up as well as raises the customer satisfaction of Sardasht hospital Therefore, decision makers and policy makers in the organization should be pay attention to this issue and try to improve the quality of services. And in this way attract customers' satisfaction. Therefore, it is recommended that each manager to develop quality improvement in his organization perform such studies as a first major step. In this case, we can expect that a pattern with a higher degree of compliance with the conditions of organization and more useful for improving quality of services adopt and correct their weaknesses and better and more fundamental planning for improve the quality of services at the hospital and reinforce the positive points and even do higher quality services than expected. To reduce the gap between expectations and perceptions of customers it is recommended that managers paid special attention to the beauty and cleanliness of the interior and exterior of the hospital and increase provided quality of services by using facilities such as appropriate heat and cold tools, cooler, chairs and modern equipment such as ATM systems, Internet and telephone services and short messaging system, service training courses to enhance knowledge and awareness of staffs in relation to the services provided as well as for better





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responsiveness and customer training can be effective for reduce gap between expectations and perceptions of consumers. Employment powerful force in terms of education related to hospital may be useful for make confidence and ability to establish a good relationship for more empathy with customers and encourage staffs to do services at the proper time and use the staffs with the ability to understand customer needs. The most important and most basic priorities of hospitals should be design and implementation of a comprehensive and practical system in order to manage relationships with patients. Thus by enabling research and development part in hospitals it can have an effective role in order that by using analytical models of quality services identify the gaps between patients and healthcare workers and planning to strengthen and reform the ravages. Also the management should consider indicated hours to answer questions from customers. And finally according to the fact that providing customer services is the existential philosophy for each organization and the ultimate goal is customer satisfaction therefore we recommend that the constructive comments of customers in various stages of planning, design, delivery and evaluation of services most used. As well as we should emphasize this point that SERVQUAL model in service organizations have helped to determine strategy of customer satisfaction, identifying, critical areas affecting satisfaction thus we recommend working on developing such models in service organizations that is in accordance with the unique features of the environment and consumers.

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Table 1.Results of Pearson correlation coefficients

| Hypothesis | Independent variable | Dependent variable | P_Value | Error rate | Correlation coefficient | Test result |
|---------------|----------------------|-----------------------|---------|------------|-------------------------|----------------------------|
| Hypothesis 1 | Service Quality | Customer Satisfaction | 0/000 | 0/01 | 0/71 | Confirm working hypotheses |
| Hypothesis 2 | Tangible things | Customer Satisfaction | 0/000 | 0/01 | 0/88 | Confirm working hypotheses |
| Hypothesis 3 | Reliability | Customer Satisfaction | 0/001 | 0/01 | 0/75 | Confirm working hypotheses |
| Hypothesis 4 | Responsiveness | Customer Satisfaction | 0/000 | 0/01 | 0/64 | Confirm working hypotheses |
| Hypothesis 5 | Assurance | Customer Satisfaction | 0/000 | 0/01 | 0/63 | Confirm working hypotheses |
| Hypothesis 6 | Empathy | Customer Satisfaction | 0/002 | 0/01 | 0/87 | Confirm working hypotheses |
| P<0/01, N=385 | | | | | | |

Table2: results of the last stage of step by step multivariate regression phase

| | Independent variables | Dependent variable | B | SIG | THE RESULT |
|------------------|-----------------------|---------------------------|-------|-------|---------------|
| The fourth phase | Tangible things | Customer Satisfaction | 0/132 | 0/000 | WORKING OF H1 |
| | Reliability | | 0/155 | 0/000 | |
| | Responsiveness | | 0/113 | 0/000 | |
| | Assurance | | 0/086 | 0/000 | |
| | Empathy | | 0/167 | 0/000 | |
| P<0/01, N= 385 | | P<0/01, F=27/93, R²= .504 | | | |





The Investigation Relationship between Job Stress and Municipal Employee Performance of the Saez City

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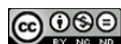
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ABSTRACT

The main objective of this study is to investigate the relationship between job stresses on organizational performance of municipal employees of Saez city. This study is a descriptive - correlational. The population of this study was the employees of Saez city their number were 287 people. The sample size was calculated 164 by using Cochran formula and was selected by simple random sampling. Data collection tools included 2 questionnaires, a questionnaire was HSE job stress questionnaire and the other was organizational performance of Nili et al (2001). Validity of the questionnaire was confirmed by the advisors and a number of professors of management. And reliability of the questionnaire was confirmed by Cronbach's alpha, for job stress questionnaires and organizational performance, were 0.90 and 0.89 respectively. Collected questionnaires were analyzed by (Kolmogorov Smirnov test, Pearson regression). The results show that there is a significant negative relationship between job stress and organizational performance of employees of Saez city. The results also showed that there was a significant negative relationship between dimensions of job stress (demand, control, lack of management support, lack of support staff roles, communication, and change) and the staffs performance.

Key words: Job Stress, Organizational Performance, Role, Control.



**Amir Moradi and Nasser Tavrah****INTRODUCTION**

Stress or tension is one of the serious problems in the today's organizations that endangered the physical and mental health workforce and imposed a heavy price to organizations the stress in the organization as a pest corrupt the activities and destroy them.

A group of experts in the field of organizational behavior, stress jobs have named the stress as the common disease of the century maybe our time is the time of stress that man more than any other ages were exposed to stress factors and many issues from the each sides surrounding him. The stress is the starting point of depression that can affect the health of body and soul, hence recognizing stress factors and what can be done to reduce these factors is important (Alavi, 2005: 35).

On the other hand, one of the questions in the business has been that, what some organizations are successful while other organizations have failed. Performance of employees is the most important thing for-profit and nonprofit organizations.

Awaking of the factors affecting the performance of the organization for managers has been very important, because it is important to take the right steps at the beginning. However, the definition of the conceptualization and performance measurement is not easy. Researchers had different definitions and beliefs about organizational performance, but it still remains a controversial issue (Barney, 1997). On the other hand, the performance of each organization was the function of the directors and staff performance, opportunities, resources and also influenced by environmental systems and other organizations (Rahim Nia et al., 2010).

One of the consequences of occupational stress is affecting job performance. Job stress if not exceed from the competences and abilities of the person it can be a motivation to improve performance, but if exceed coping capacity can be debilitating effect on individual and organizational performance. The results of the most performed studies, shows the negative association between job stress and the performance (Daniels and Harris, 2000; Shahid et al., 2011; Ghavkadehi et al., 2012). The results of Khaneshenas research and others (2013) showed that there is a significant negative correlation between stress "area of responsibility" and "corporate social sphere" with job performance. Among the measures of stress within the organization - social, organizational culture and leadership scale shows highly significant negative relationship with job performance. The research results of Golparvar et al (2013) showed that job stress has a negative correlation with job satisfaction and job performance significant and has a positive and significant relationship with leave the job. The results of Abu AIRub (2004) investigation showed that the relationship between job stress and employee performance is like a U-shaped curve. On this basis for the nurses who had reported average level of job stress were believed their job performance was better than those who have high and low stress levels.

The municipality is one of the organizations that their staffs are exposed to stress because of several reasons such as heavy staff workload, work pressure responsibilities and duties and expectations of managers and citizens. Therefore, due to the effects of job stress on staffs and the organizations this research was necessary. Thus, this study we sought to examine the impact of stress on employees' performance turpentine of Saez city.

METHODOLOGY

The current study from the view of methods is cross-correlation and from of the view of target is application. The data populations of the current study are municipality staffs of Bookan city. According to the list released by that agency the number of employees were totally 287 people. The sample size using formula Cochran, 164 people were



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estimated. To select a statistical sample randomly simple method were used. To collect the data a questionnaire used that is set according to research variables and operating them. To determine the validity of data collection, the comments of management and psychology professors and academic experts were used. Cronbach's alpha was used to test the reliability of the test. For this purpose the reliability of the questions of job stress, organizational performances were achieved, 0/89, 0/900, respectively. In order to analyze the data Kolmogorov - Smirnov test, Pearson correlation and regression analysis were used.

RESULTS

Statistical indicators (central tendency and dispersion) variables of research has indicated in Table 1.

Inferential statistics**Kolmogorov-Smirnov Test**

According to obtained results in table1 and since amount of achieved meaningful level for tests is larger than 0.05 we accept the hypothesis of normality of data and to evaluate hypothesis we can use from parametric methods

Test hypotheses

The main hypothesis testing: There is a significant relationship between job stress and employee performance of Saqez city.

As we see the significant level of correlation test is smaller than 0.05 ($P\text{-value}=\text{sig} < 0.05$) resulted that the correlation between job stress and Staff performance with 95 percent confidence significant. And the assumption of lack of correlation between the two variables is rejected. The negative amount of correlation means that two variables have inverse relationship with each other it means that by increasing job stress the performance of municipality staffs of Saqez city decreases

The main hypotheses test :The job stress has impact on employee performance of Saqez city.

As we see the significant level of correlation test is smaller than 0.05 ($P\text{-value}=\text{sig} < 0.05$) resulted that the correlation between job stress and Staff performance with 95 percent confidence significant. And the assumption of lack of correlation between the two variables is rejected. The negative amount of correlation means that two variables have inverse relationship with each other it means that by increasing job stress the performance of municipality staffs of Saqez city decreases.

The second sub-hypothesis test :The component of control has impact on performance of Municipality staffs.

As we see the significant level of correlation test is smaller than 0.05 ($P\text{-value}=\text{sig} < 0.05$) resulted that the correlation between job stress and Staff performance with 95 percent confidence significant. And the assumption of lack of correlation between the two variables is rejected. The negative amount of correlation means that two variables have inverse relationship with each other it means that by increasing job stress the performance of municipality staffs of Saqez city decreases.

The third sub-hypothesis test :The component of control has impact on performance of Municipality staffs.



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As we see the significant level of correlation test is smaller than 0.05 ($P\text{-value}=\text{sig} < 0.05$) resulted that the correlation between job stress and Staff performance with 95 percent confidence significant. And the assumption of lack of correlation between the two variables is rejected. The negative amount of correlation means that two variables have inverse relationship with each other it means that by increasing job stress the performance of municipality staffs of Saqez city decreases.

The fourth sub-hypothesis test :The component of the lack of support of managers has impact on performance of Municipality staffs.

As we see the significant level of correlation test is smaller than 0.05 ($P\text{-value}=\text{sig} < 0.05$) resulted that the correlation between job stress and Staff performance with 95 percent confidence significant. And the assumption of lack of correlation between the two variables is rejected. The negative amount of correlation means that two variables have inverse relationship with each other it means that by increasing job stress the performance of municipality staffs of Saqez city decreases.

The fifth sub-hypotheses :The component of the lack of support of colleagues has impact on performance of Municipality staffs.

As we see the significant level of correlation test is smaller than 0.05 ($P\text{-value}=\text{sig} < 0.05$) resulted that the correlation between job stress and Staff performance with 95 percent confidence significant. And the assumption of lack of correlation between the two variables is rejected. The negative amount of correlation means that two variables have inverse relationship with each other it means that by increasing job stress the performance of municipality staffs of Saqez city decreases.

The six sub-hypotheses: The component of communication has impact on performance of Municipality staffs.

As we see the significant level of correlation test is smaller than 0.05 ($P\text{-value}=\text{sig} < 0.05$) resulted that the correlation between job stress and Staff performance with 95 percent confidence significant. And the assumption of lack of correlation between the two variables is rejected. The negative amount of correlation means that two variables have inverse relationship with each other it means that by increasing job stress the performance of municipality staffs of Saqez city decreases.

Seven sub-hypotheses :The component of role has impact on performance of Municipality staffs.

As we see the significant level of correlation test is smaller than 0.05 ($P\text{-value}=\text{sig} < 0.05$) resulted that the correlation between job stress and Staff performance with 95 percent confidence significant. And the assumption of lack of correlation between the two variables is rejected. The negative amount of correlation means that two variables have inverse relationship with each other it means that by increasing job stress the performance of municipality staffs of Saqez city decreases.

DISCUSSION AND CONCLUSION

The purpose of this study was to investigate the relationship between job stress and performance staffs of municipality in the Saqez city.

Pearson correlation test results showed that there is a negative relationship between job stress and performance staffs of municipality in the Saqez city and this consistent with the findings of other researchers (Gplparvar et al, 2013;



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Khane Shenan et al, 2013; Abu AIRub, 2004). And are contradictory with the results of Ghasemi Esfahlan (2012). Ghasemi Esfahlan (2012) did not report any significant relationship between job stress and employee performance. Thus, according to the results, managers and related officials of Saqez city should take special measures in order to reduce employee stress and thereby enhance the performance of their employees

Pearson correlation test results for the first sub-hypothesis showed that there is a significant negative relationship between the components of demand and performance of staff council of Saqez city. So according to the results, managers and officials of the city council, in order to reduce demand component through actions such as (right job opportunities for employees to do their work, the proper time to do so, determine the volume working for employees, providing rest for employees) thereby raise their performance.

Pearson correlation test results for the second sub-hypothesis showed that there is a significant negative relationship between the components of control and performance of staff council of Saqez city. So according to the results, managers and officials of the city council, in order to In order to strengthen control components should take actions such as (giving the right authority to staffs to determine the time of their rest, giving the right authority to staffs for speed up their work, giving the right authority to staffs to determine their working shifts, etc.) thereby raise their performance.

Pearson correlation test results for the third sub-hypothesis showed that there is a significant negative relationship between the lack of support from managers and staff performance of staff council of Saqez city. So according to the results, managers and officials in the city council should take actions to strengthen the component of not supporting managers through actions such as (provide space for comments from managers to employees about their work tasks, helping staff director When faced with problems of employees, allowing company executives in the event of failure on the part of employees, help employees work at inconvenient, encouraging employees displacing manager and thereby raise their performance.

Pearson correlation test results for the fourth sub-hypothesis that there is a significant negative relationship between the lack of support staff and the performance component of municipalities' staffs of Saqez city thus according to obtained results managers and officials in the Saqez city should strengthen the component of the lack of staff support by(providing a culture of respect for each other from colleagues, Providing a culture of respect for each other from Colleagues) and thereby raise their performance.

Pearson correlation test results for the fifth sub-hypothesis indicated that there is a significant negative relationship between the relationship components and performance of municipal employees of Saqez city. So according to the results, managers and officials should take attentions in order to control the communication component (to strengthen communication between employees with respect and not insult each other, eliminate stress the conflict between the employee, reliving the stuffs through the provision of appropriate conditions for employees in the organization) and thereby raise their performance.

Pearson correlation test results for the sixth sub-hypothesis indicated that there is significant negative relationship between components of the role and performance of municipal employees of Saqez city. So according to the results, managers and officials in the city council to work towards the clarification of the role of employees in the organization through actions such as (specify job expectations, identify ways of doing things, aware of the employee's goals and the views of the working environment, the employees aware of the importance of their job tasks to achieve organizational goals and thereby raise their performance.

Pearson correlation test results for the seventh sub-hypothesis indicated that there is a significant negative relationship between changes components and performance of municipal employees of Saqez city. So according to





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the results, managers and officials in the city council should clarify the changes in the organization through acts such as (provide conditions for employees to make important changes to the organizational question, consult with staff to make changes , informing employees of the practical changes) and thereby raise their performance.

While stress cannot always be seen as a negative phenomenon and there is positive stress, but the stress has impact on the performance and activities of the organization. Managers, employees and clients affected by the stress of a particular mental states, and acts likely to be reflected directly in the activities and organization effectiveness. Therefore, managing stress and use it to craft and move faster toward organizational goals is one of the goals that have been recently introduced in organizations. The organizations can prevent from negative stresses and their consequences by effective education of staffs and the managers can do it by better understanding of the factors causing stress and better management of it.

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Table (1): Statistical indicators and research variables

| variables | Mean | | MAX | MIN | range | The sample size | Standard Deviation |
|----------------------------|----------------|------------|------|------|-------|-----------------|--------------------|
| | Standard error | statistics | | | | | |
| Job Stress | 0/01104 | 2/896 | 4/60 | 1/80 | 2/80 | 164 | 0/31420 |
| Demand | 0/02131 | 3/4571 | 5/00 | 2/83 | 2/17 | 164 | 0/41011 |
| Control | 0/03305 | 3/2890 | 3/20 | 1/40 | 1/40 | 164 | 0/33111 |
| Lack of management support | 0/01459 | 2/808 | 3/75 | 2/00 | 1/75 | 164 | 0/27296 |
| Lack of support from | 0/02414 | 2/815 | 5/00 | 2/00 | 3/00 | 164 | 0/12277 |
| Lack of support from | 0/02407 | 3/7531 | 5/00 | 3/00 | 2/00 | 164 | 0/46902 |





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| | | | | | | | |
|----------------|---------|--------|------|------|------|-----|---------|
| colleagues | 0/02428 | 3/7621 | 4/20 | 1/80 | 2/40 | 164 | 0/42419 |
| Communications | 0/02535 | 3/2434 | 4/60 | 1/20 | 3/40 | 164 | 0/33800 |
| Role | | | | | | | |
| Variations | | | | | | | |

Table (2): Kolmogorov-Smirnov test for normally distributed fitness

| Variable | number | Kolmogorov Z – Smirnov statistic | Significant level(sig) | Result of the test |
|---------------------------------|--------|----------------------------------|------------------------|--------------------|
| Job stress | 164 | 1/063 | 0/068 | normal |
| Demand | 164 | 1/093 | 0/054 | Normal |
| Control | 164 | 1/935 | 0/124 | Normal |
| Lack of management support | 164 | 0/983 | 0/432 | Normal |
| Lack of support from colleagues | 164 | 0/976 | 0/389 | normal |
| Communications | 164 | 1/343 | 0/111 | Normal |
| Role | 164 | 1/452 | 0/291 | Normal |
| variables | 164 | 2/601 | 0/064 | Normal |
| Staff performance | 164 | 1/321 | 0/067 | normal |

Table (3): The results of the Pearson correlation test for the main theory

| variable | Staff performance | |
|------------|---------------------------------|--------|
| Job stress | Number of Visits | 164 |
| | Pearson correlation coefficient | -0.510 |
| | Sig | 0.000 |

Table (4): results of Pearson correlation test for the main theory

| variable | Staff performance | |
|----------|---------------------------------|---------|
| demand | Number of Visits | 164 |
| | Pearson correlation coefficient | - 0.400 |
| | Sig | 0.000 |

Table (5): results of Pearson's correlation test for the second hypothesis

| variable | Staff performance | |
|----------|---------------------------------|--------|
| control | Number of Visits | 164 |
| | Pearson correlation coefficient | -0.290 |
| | Significant level | 0.004 |





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Table (6): Pearson's correlation test results for the third sub-hypothesis

| variable | Staff performance | |
|------------------------------|---------------------------------|--------|
| The lack support of managers | Number of Visits | 164 |
| | Pearson correlation coefficient | -0.321 |
| | Significant level | 0.004 |

Table (7): results of Pearson's correlation test for the fourth sub-hypothesis

| variable | Staff performance | |
|--------------------------------|---------------------------------|--------|
| The lack support of Colleagues | Number of Visits | 164 |
| | Pearson correlation coefficient | -0.430 |
| | Significant level | 0.004 |

Table (8): Pearson's correlation test results for sub-hypothesis fifth

| variable | Staff performance | |
|---------------|---------------------------------|--------|
| communication | Number of Visits | 164 |
| | Pearson correlation coefficient | -0.350 |
| | Significant level | 0.002 |

Table (9): Pearson's correlation test results for sub-hypothesis sixth

| variable | Staff performance | |
|----------------|---------------------------------|--------|
| Role component | Number of Visits | 164 |
| | Pearson correlation coefficient | -0.312 |
| | Significant level | 0.003 |

Table (10): Pearson's correlation test results for sub-hypothesis seventh

| variable | Staff performance | |
|-------------------|---------------------------------|--------|
| Changes component | Number of Visits | 164 |
| | Pearson correlation coefficient | -0.255 |
| | Significant level | 0.006 |

