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Person of the Month
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The Study of Mental Health and Marital Adjustment of Single and Dual Employee Married Couples

Gaikwad Santosh Bhikaji[1]*, Dr. Khalane Shashikant Hari[2]

ABSTRACT

Aim: According to the world health organization, health means the person is not only free from any physical and psychological illness but (s)he should be fit socially too as well as no health without mental health. The present study aimed to investigate the level and difference of mental health and marital adjustment among single and dual employee married couples. ***Methods:*** This study was done on 300 married couples (150 single and 150 dual employees) through random sampling technique. Mithila Mental Health Status Inventory and Marriage Adjustment Inventory were used to collect data. Data were analyzed by using Mean, S.D, t-test and Pearson Correlation. ***Results:*** Result proves it no significant difference on mental health's areas of egocentrism, alienation, and emotional un-stability but a significant difference in expression and social nonconformity, among single and dual employee married couples. Single employee married couple would have better marital adjustment than dual employee married couple. High-level positive correlation between mental health and marital adjustment among single and double employee married couples.

Keywords: *Mental Health, Marital Adjustment, Single and Dual Employee Married Couples*

Marriage is a most important event in the life of every person. It is a commitment to love, happiness, and development of a very strong as well as the healthy family relationship. Today women's roles are changed. When married women work outside the home they encounter problems of harmonizing their two roles. In this situation, many problems are created in the family as well as working place. Dual-career families are growing in number as more women pursue advanced preparation for careers and subsequently join and remain in the workforce (Inglehart 1979). Both husband and wife in a dual-career family pursue job sequences that require a high degree of commitment and that have a continuous developmental character. The couple may have to deal to deal with competition, coordination of domestic and parental tasks,

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and time management in general (Pleck, Stanines, and Lang 1980; Rapoport and Rapoport 1976).

In dual-career couples, typical gender roles are compromised since both the partners are earners. This, in turn, may have a direct bearing on the dynamics of trust in a marital relationship. In order to have a satisfied matrimonial relationship, male spouse in a dual career couple may have to be more egalitarian and trusting towards his wife since she has to be amongst many male colleagues at her workplace in contrast with a housewife who has minimal contact with males outside of her family. Furthermore, issues like division of labour at home, child rearing, work hours, work-family conflict, and nature of job could strain the marital relation. The relationship of interactional patterns to the marital satisfaction of single and dual-career couples depends on most likely upon certain factors e.g. equality and reciprocity in the relationships, mutual give and take, spousal support, to be involved in each other's careers, having an equal commitment to the relationship, and to practice equal decision-making. Research has documented that sharing non-traditional sex-role attitudes and the husbands approving of their wives' careers were related to higher marital satisfaction (Sprunt and Howes, 2011).

The significance of the present study may be assessed from two angles -theoretical and applied. Theoretically, this study will contribute in clarifying the role of the job as it influences the process of mental health and marital adjustment of single and dual employee married couples. On the applied since, the study may help in knowing the influence of job on mental health, and marital adjustment of single and dual-employed married couples.

Statement of the Problem:

"The study of mental health and marital adjustment of single and dual employee married couples."

REVIEW OF PREVIOUS RESEARCHERS

The researchers has been reviewed various literature with mental health and marital adjustment of single and dual employee married couples. The sense of achievement, income and recognition in society enable working women to consider their jobs as rewarding and psychologically satisfying. Studies of Voydanoff and Donnelly (1989) found that worker role reward value has greater significance to mental health of working women. On the contrary, being confined to the home is considered as important factor of poor mental health among non-working women- Different studies comparing the psychological health of working women and non-working women report that employed women are more satisfied in their life than non-working women. Burke and Weir (1976) in their study found to satisfaction and power mental and physical health among housewives. Duxbury and Higgins (1991) did a study on Saskatchewan workers, in which they tested a number of different indicators of mental health such as job stress, perceived stress, burnout and depression among dual-career couples. The result shows that 30% of workers reported high level of job stress which is linked to factors such as poor physical and mental

health, high family stress, marital conflict and poor performance of work and family roles. Jason (2009), in his research of dual career families, has pointed out that couples' mental and physical health are related in these families and financial problems are very important to decrease both mental health and physical health. Dual-career couples have to fulfil multiple roles and are confronted with demands and stressors from the work and private life domains (Domsch and Ladwig, 2007). Elloy and Smith (2003), for instance, found that Dual-career couples experienced more stress, work-family conflict, family conflict, role ambiguity, role conflict and overload than single-career couples. Osherson and Dill (1983) in their study on men's work satisfaction in dual earner families observed that since family lives are organized around two jobs rather than one, these marriages necessarily lent a different quality to marital negotiations. In such marriages wife's career experiences put her in a better position to understand her husband's life outside the home. These researchers found that since there is greater similarity between the roles of partners both at work and home there does greater mutual understand between the spouses in dual earner marriages. Moreover job satisfaction and marital happiness interact for husbands only when the wife is employed. Shukla (1987) found that when wives are employed, they have more power in marriage and enjoy more healthy relationship in marriage. More wives had better marital adjustment than their husbands, whereas husbands showed better efficiency and mental health (Jaisri, M and M.I. Joseph, 2014).

Objectives:

1. To find out the level of mental health among single and dual employee married couples.
2. To search the marital adjustment among single and dual employee married couples.
3. To examine the correlation between mental health and marital adjustment among single and dual employee married couples.

Hypotheses:

H1- Single employee married couples would have better mental health than dual employee married couples.

H2- Single employee married couples would have higher level marital adjustment than dual employee married couples.

H3- Mental health and marital adjustment would be positively correlated.

Variables:

IV- Types of Couples (single and dual employee married couples).

DV- Mental health and marital adjustment

RESEARCH METHODS

Sample and data:

The sample for the present study consisted of 300 married couples (150 single and 150 dual employees) selected through random sampling technique from Ahmednagar district in Maharashtra.

Groups	N
Single Employee Married Couple	150
Dual Employee Married Couple	150
Total	**300**

Data collection tools:

1. **Mithila Mental Health Status Inventory**:- Standardized by Anand Kumar and Giridhar Thakur (1984).
2. **Marriage Adjustment Inventory**:-Developed by Dr. C. G. Deshpande (2000).

Statistical Treatment:

The data collected was analysed by Mean and S.D., t-test and Pearson Correlation was used for hypotheses testing. Statistics were done using SPSS.

Data Analysis and its Interpretation:-

The main purpose of the present study was investigating the level, difference and correlation between the mental health and marital adjustment of single and dual employee married couples. For this purpose investigator formulated three different hypotheses. Results are shown in below given tables.

Table-1 Table shows value of mental health areas among single-dual employee respondents.

Areas of Mental Health	Types of couples	N	Mean	Std. Deviation	t
Ego Centrism	Single employee Married Couples	150	20.62	1.62	1.58
	Dual employee Married Couples	150	20.26	2.22	
Alienation	Single employee Married Couples	150	17.57	3.01	0.29
	Dual employee Married Couples	150	17.47	2.75	
Expression	Single employee Married Couples	150	19.13	2.84	2.98**
	Dual employee Married Couples	150	20.21	3.40	
Emotional Un stability	Single employee Married Couples	150	16.58	2.33	1.79
	Dual employee Married Couples	150	17.18	3.36	
Social Non Conformity	Single employee Married Couples	150	16.23	1.60	2.53*
	Dual employee Married Couples	150	16.85	2.51	

df=298, 0.01=2.97, 0.05=1.97 **P < 0.01, *P< 0.05 significant

The above table shows the mental health among different attributes selected in the present investigation. Above five areas were considered cardinal one for estimating mental health status of people. Alienation, egocentrism, and social non-conformity scales were included to assess psychiatric and social problems; expression and emotional unstability were put to ascertain personality disturbances.

The description of Ego-Centrism goes among single employee married couples mean 20.62; standard deviation 1.62 and the dual employee married couples mean 20.26, standard deviation 2.22. The calculated 't' value 1.58, the value is not significant. Egocentrism measures the extent to which the individual is concerned about his own need, feelings, opinions, and ideas. It means there is no significant difference on Ego-Centrism among single and double employee married couples.

The description of Alienation goes among single employee married couples mean 17.57; standard deviation 3.01 and the dual employee married couples mean 17.47, standard deviation 2.75. The calculated 't' value 0.29, the value is not significant. Alienation indicates the level of suspicious, oversensitive, getting unusual sensations and sensory distortions. It means there is no significant difference on Alienation among single and dual employee married couples.

The description of Expression goes among single employee married couples mean 19.13; standard deviation 2.84 and the dual employee married couples mean 20.21, standard deviation 2.40. The calculated 't' value 2.58, the value is significant at 0.01 level. It means there is the significant difference in Expression among single and dual employee married couples. The expression would measure the level of interaction of individuals on a social level. Single employee married couples level of expression is high to the subject than dual employee married couples. It is indicates that the dual employee married couples have the inconsistency of relationships in social situations, lack of social disclosure and the notion of insecurity.

The description of Emotional Un stability goes among single employee married couples mean 16.58; standard deviation 2.33 and the dual employee married couples mean 17.18, standard deviation 3.36. The calculated 't' value 1.79, the value is not significant. Emotional unstability has indicated the person would be unhappy, nervous, emotionally labile, fearful, anxious and depressed. It means there is no significant difference on Emotional Un stability among single and dual employee married couples.

The description of Social Non-Conformity goes among single employee married couples mean 16.23; standard deviation 1.60 and the dual employee married couples mean 16.85, standard deviation 2.51. The calculated 't' value 2.53, the value is significant at 0.05 level. It means that is the significant difference on Social Non-Conformity among single and dual employee married couples. The social non-conformity would provide a clue to whether the individual was aligning

with the existing social system or against it. This is indicates that the dual employee married couples to be narcotic. Such couples would like to cut them off from effective participation in the ordinary social situation.

Table-2 Table shows value of marital adjustment among single-dual employee respondents.

Marital Adjustment				
Types of Couples	**N**	**Mean**	**Std. Deviation**	**t**
Single employee Married Couples	150	53.42	5.11	6.41**
Dual employee Married Couples	150	58.58	8.42	

df=298, 0.01=2.97, 0.05=1.97 **P < 0.01, *P< 0.05 significant

The above table shows the marital adjustment among different attributes selected in the present investigation. The description of marital adjustment goes among single employee married couples mean 53.42; standard deviation 5.11 and the dual employee married couples mean 58.58, standard deviation 8.42. The calculated 't' value 6.41, the value is significant at 0.01 level. It means that is the significant difference on marital adjustment among single and dual employee married couples. This is indicates that the single employee married couples better adjustment than dual employee married couples.

Table-3 Table shows value of correlation between mental health and marital adjustment among single and dual employee respondents.

Areas of Mental Health	**Ego Centrism**	**Alienation**	**Expression**	**Emotional Un stability**	**Social Non Conformity**
Marital Adjustment	.624**	.775**	.801**	.750**	.712**
N	300	300	300	300	300

df=298, 0.01=0.14, 0.05=0.11P < 0.01, *P< 0.05 significant**

The above table indicates the correlation between mental health and marital adjustment in the present investigation. The correlation scores of Ego-Centrism and marital adjustment is 0.624, Alienation and marital adjustment is 0.775, Expression and marital adjustment is 0.801,Emotional Un Stability and marital adjustment is 0.750 and Social Non Conformity and marital adjustment is 0.712 It is also significant at 0.01 level on 298 df grade. This is indicates that the single and dual employee married couples mental health and marital adjustment are positive correlated at the high level.

DISCUSSION

The present study focuses on the mental health and marital adjustment of single and dual employee married couples. According to the world health organization, health means the person is not only free from any physical and psychological illness but (s)he should be fit socially too as well as no health without mental health. In the present investigation, mental health is measured using Mithila Mental Health Status Inventory. Alienation, egocentrism, and social non-conformity scales were included to assess psychiatric and social problems; expression and emotional unstability were put to ascertain personality disturbances.

The calculated scores of mental health showed in table no-1. The calculated 't' value of Ego-Centrism, Alienation, and Emotional Un stability are no significant difference among single and dual employee married couple. But also The calculated 't' value of Expression and Social Non Conformity is significant at 0.01 and 0.05 level. It means there is no significant difference on egocentrism, alienation, and emotional un-stability but also the significant difference on expression and social nonconformity among single and dual employee married couples. It indicates that mental health is not merely an absence of mental illness, but it is also the ability to cope with problems in life. A good mental health is essential for leading a good life effectively if he/she is suffering from stresses and strains and is struggling with mental health problems such as depression or unsteady feeling due to social or mental pressure; with poor mental health, one loses overall effectiveness. Job stress can cause poor health and can increase rates of family related problems. Mental health is the balance between all aspects of life- social, physical and spiritual aspect of a person. It impacts on how we manage our surroundings and make choices in our lives clearly it is an integral part of our overall health.

The calculated scores of marital adjustment showed in table no-2. The calculated 't' value of marital adjustment is very significant at 0.01 level. It indicates that marital adjustment has been related to the job, home stresses, mental illness, education, gender role attitude, happiness and success in life. Dual employee married woman has to face marital adjustment problems in her married life. She also cannot high perform for her married life responsibilities because she is under pressure and stress as well as if a married woman feels stress and living under pressure every time in her life, it directly affects her household work, relationship with spouse and other members of her family. So many difficulties are created for marital adjustment among dual employee married couples.

The calculated scores of correlation between mental health and marital adjustment showed in table no-3. The calculated Pearson Correlation value of all areas (Egocentrism, Alienation, Expression, Emotional Unstability and Social Non-conformity) of mental health and marital adjustment are significant at the 0.01 level (2-tailed). It means there is a high positive correlation between mental health and marital adjustment among single and double employee married couples. It indicates that mental health has been reported as an important factor influencing an

individual's various behaviours, activities, happiness, and performance. If the mental condition is good, he/she can take various responsibilities of a family, understand the complications and try to solve them, plan for future and adjustment with others by becoming mentally strong. Mental health can be defined as the ability to make adequate social and emotional adjustments to the environment, on the plane of reality. So, there is positive correlation between mental health and marital adjustment among single and double employee married couples.

CONCLUSION

To sum up, we might conclude that no significant difference on egocentrism, alienation, and emotional un-stability but the significant difference on expression and social nonconformity, among single and dual employee married couples. Single employee married couple would have better marital adjustment than dual employee married couple. High level positive correlation between mental health and marital adjustment among single and double employee married couples.

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Conflict of Interests

The author declared no conflict of interests.

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CONTENTS

Self- Attributes questionnaire (SAQ), the Self-Liking/Self-Competency Scale – Revised (SLSC-R), the Ten-Item Personality Inventory (TIPI), and a music preference survey, the STOMP-M, which assessed the type of music the participants were inclined to listen to. The participants were selected using convenience sampling; and consisted of 314 first year university students studying at Auckland University of Technology. The results of this study indicated no relationship between music preference, as an aspect of social identity, and self-esteem. A relationship was found between some music preference factors and some personality traits. A correlation was also observed between some music preference factors and some aspects of psychological wellbeing.

Conclusions and Future Study

In order to gain a complete understanding of music enrichment programme's true effect on psychological wellbeing on mentally challenged children. After exploring the above studies it can be said that music plays a vital role for better psychological wellbeing. Most of the researches had focused on music.

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Vol. 86, No. 4, Year 2016,

THE STUDY OF MENTAL HEALTH AND LIFE SATISFA SINGLE AND DUAL EMPLOYEE MARRIED COUP

G. S. Bhikaji* and K. S. Hari**

Mental health and life satisfaction are issues of everyday life : in families, on stre workplaces. The present study aimed to investigate the level and difference of men and life satisfaction among single and dual employee married couples.

This study was done on 300 married couples (150 single and 150 dual employees random sampling technique. Mithila Mental Health Status Inventory (Anand Kumar an Thakur (1984)) and Life Satisfaction Scale (Dr. Q. G. Alam and Dr. Ramji Srivastava, 2 used to collect data. Data were analyzed by using Mean, S.D, t-test and Pearson Co

Result proves it is no significant difference on mental health's areas of ego alienation, and emotional un-stability but significant difference in expression a nonconformity among single and dual employee married couples. Single employe couple would have high level life satisfaction than dual employee married couple. positive correlation between mental health and life satisfaction among single an employee married couples.

Life-satisfaction is one of the indicators of 'apparent' quality of life. Together wi mental and physical health, it indicates how well people thrive. Generally, life circums mental and physical health, social contacts, good income, education, and being in increase life satisfaction. (Dolan, Peasgood and White, 2008). Mental health and life issues of everyday life : in families, in schools, on streets and in workplaces. Therefore of interest to every citizen, to every politician and to every employee as well as to all se This includes sectors such as education, employment, environment, housing and tran health and social welfare. Many civil society organizations have taken an active rol mental health. Mental health, social integration and productivity are linked : well-func societies, organizations and workplaces are not only healthier but also more effective

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The significance of the present study may be assessed from two angles – theoretical and applied. Theoretically, this study will contribute in clarifying the role of the job as it influences the process of mental health and life satisfaction of single and dual employee married couples. On the applied since, the study may help in knowing the influence of job on mental health and life satisfaction of single and dual-employed married couples.

Statement of the Problem

"The study of mental health and life satisfaction of single and dual employee married couples."

Review of previous Researchers

The researchers have been reviewed various literature with mental health and life satisfaction of single and dual employee married couples. The focus of this study was to the dual career family, a family structure in which both the husband and the wife are committed to occupational careers and to maintaining a family life together (Rapoport & Rapoport, 1971). The dual career family is a small, but significant, subset of a larger family grouping known as the dual earner family. According to Palmore and Liukart (1972), life satisfaction has been defined according to health status, social variables, like income level, family satisfaction, and organizational activities. It is relatively sensitive to changes in circumstances. The study of Maynard (1993) indicated some evidence that as the number of family (work/family) roles increases, scores on occupational adjustment and life satisfaction scales tended to increase. Maynard (1993) indicated some evidence that as the number of family (work/family) roles increases, scores on occupational adjustment and life satisfaction scales tended to increase. Masnain, Shahnawaz, and Sharma (2001) reported significantly more life, satisfaction in husbands of working women than husbands of housewives. They also had more life satisfaction than their working wives. Lewis and Borders (1995) examined 10 factors and their relation to the life satisfaction. Life satisfaction was significantly explained by the resource to the variables of job satisfaction, internal locus of control, regrets regarding life circumstances, sexual satisfaction and leisure time activities. Jan and Masood (2008) who found that with an increase in family income, the overall life satisfaction of women also increases.Hall and Hall (1979) reported that the limited time available for dual career couples to spend together contributes to stress in the marital relationship. This stress is experienced through loss of romance, competition, sexual problems, and an inequitable power balance. Sekaran (1986) believed the majority of dual career couples are synchronized and synthetic partners. Sekaran argued that other studies of dual career couple satisfaction may reveal inconsistent results and suggested that central life interest and sex role orientation be measured against other variables such as marital, job, and life satisfaction, and mental health to determine how these couple types account for variations in quality of life factors. Sekaran (1986) reported positive mental health for mothers in dual career marriages is associated with having three to four or more children. A basic understanding of self, life goals, and definition of success may be necessary to experience good physical and mental health and to achieve a high quality of life in dual career families.

Objectives :

1. To find out the level of mental health among single and dual employee marrie
2. To search the level of life satisfaction among single and dual employee marrie
3. To examine the correlation between mental health and life satisfaction among employee married couples.

Hypotheses :

H_1 : Single employee married couples would have better mental health than married couples.

H_2 : Single employee married couples would have higher level life satisfaction than married couples.

H_3 : Mental health and life satisfaction would be positively correlated.

Variables :

IV- Types of Couples (Single and Dual Employee Married Couples).

DV- Mental health and Life Satisfaction.

METHODS

Sample and data :

The sample for the present study consisted of 300 married couples (150 single employees) selected through random sampling technique from Ahmednagar district in M

Groups	N
Single Employee Married Couple	150
Dual Employee Married Couple	150
Total	300

Data collection tools :

1. **Mithila Mental Health Status Inventory :** Standardized by Anand Kumar and Gi (1984).

2. **Life Satisfaction Scale (LSS) :** Developed and standardized by Dr. Q. G. Alam Srivastava (2001).

Statistical Treatment :

The data collected was analysed by Mean and S.D., *t*-test and Pearson Correlation hypotheses testing. Statistics were done using SPSS.

Data Analysis and its Interpretation :

The main purpose of the present study was investigating the level, difference and correlation between the mental health and life satisfaction of single and dual employee married couples. For this purpose investigator formulated three different hypotheses. Results are shown in below given tables.

Table-1 : Table Shows Value of Mental Health Areas Among Single-dual Employee Respondents.

Areas of Mental Health	Types of couples	N	Mean	Std. Deviation	t
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	Dual employee Married Couples	150	16.85	2.51	

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df = 298, 0.01 = 2.97, 0.05 = 1.97 $^{**}p < 0.01$, $^{*}p < 0.05$ significant

value 0.29, the value is not significant. Alienation indicates the level of suspicious, o getting unusual sensations ahd sensory distortions. It means there is no significant c Alienation among single and dual employee married couples.

The description of Expression goes among single employee married couples mean 19. deviation 2.84 and the dual employee married couples mean 20.21, standard deviatic calculated 't' value 2.58, the value is significant at 0.01 level. It means there is the significa in Expression among single and dual employee married couples. The expression would r level of interaction of individuals on a social level. Single employee married couples level o is high to the subject than dual employee married couples. It is indicates that the dua married couples have the inconsistency of relationships in social situations, lack of socia and the notion of insecurity.

The description of Emotional Un stability goes among single employee married cou 16.58; standard deviation 2.33 and the dual employee married couples mean 17.18, standa 3.36. The calculated 't' value 1.79, the value is not significant. Emotional unstability has in person would be unhappy, nervous, emotionally labile, fearful, anxious and depressed. It m is no significant difference on Emotional Un stability among single and dual employee marri

The description of Social Non-Conformity goes among single employee married cou 16.23; standard deviation 1.60 and the dual employee married couples mean 16.85, standar 2.51. The calculated 't' value 2.53, the value is significant at 0.05 level. It means that is the difference on Social Non-Conformity among single and dual employee married couples. non-conformity would provide a clue to whether the individual was aligning with the exis system or against it. This is indicates that the dual employee married couples to be narc couples would like to cut them off from effective participation in the ordinary social situatio

Table-2 : Table Shows Value of Life Satisfaction Among Single-dual E Respondents.

Types of Couples	N	Mean	Std. Deviation
Single employee married couples	150	40.16	3.03
Dual employee married couples	150	35.44	2.57

The above table shows the marital adjustment among different attributes selected in th investigation. The description of life satisfaction goes among single employee married coup 40.16; standard deviation 3.03 and the dual employee married couples mean 35.44, standard 2.57. The calculated 't' value 4.72, the value is significant at 0.01 level. It means that is the s difference in life satisfaction among single and dual employee married couples. This indicate high-level life satisfaction of single employee married couples than dual employee married c

df = 298, 0.01 = 2.97, 0.05 = 1.97 $^{**}p < 0.01$, $^{*}p < 0.05$ significant

Table-3 : Table Shows Value of Correlation Between Mental Health and Life Satisfaction Among Single and Dual Employee Respondents.

Areas of Mental Health	Ego Centrism	Alienation	Expression	Emotional Un stability	Social Non Conformity
Life Satisfaction	.305**	.387**	.425**	.381**	.365**
N	300	300	300	300	300

The above table indicates the correlation between mental health and life satisfaction in the present investigation. The correlation scores of Ego-Centrism and life satisfaction is 0.624, Alienation and life satisfaction is 0.775, Expression and life satisfaction is 0.801, Emotional Un Stability and life satisfaction is 0.750 and Social Non-Conformity and life satisfaction is 0.712. These correlations are significant at 0.01 level on 298 *df* grade. This indicates that the single and dual employee married couples mental health and life satisfaction is positively correlated at the high level.

DISCUSSION

The present study focuses on the mental health and life satisfaction of single and dual employee married couples. In the present investigation, mental health is measured using Mithila Mental Health Status Inventory. Alienation, egocentrism, and social non-conformity scales were included to assess psychiatric and social problems; expression and emotional unstability were put to ascertain personality disturbances.

The calculated scores of mental health showed in table no-1. The calculated '*t*' value of Ego-Centrism, Alienation, and Emotional Un stability are no significant difference among single and dual employee married couple. But also The calculated '*t*' value of Expression and Social Nonconformity is significant at 0.01 and 0.05 level. It means there is no significant difference on egocentrism, alienation, and emotional un-stability but also the significant difference on expression and social nonconformity among single and dual employee married couples. It indicates that mental health is not merely an absence of mental illness, but it is also the ability to cope with problems in life. A good mental health is essential for leading a good life effectively if he/she is suffering from stresses and strains and is struggling with mental health problems such as depression or unsteady feeling due to social or mental pressure; with poor mental health, one loses overall effectiveness. Job stress can cause poor health and can increase rates of family related problems. Mental health is the balance between all aspects of life- social, physical and spiritual aspect of a person. It impacts on how we manage our surroundings and make choices in our lives clearly it is an integral part of our overall health.

The calculated scores of life satisfaction showed in table no-2. The calculated '*t*' value (4.72) of life satisfaction is significant at 0.01 level. This indicates that the high-level life satisfaction of single

df = 298, 0.01 = 0.14, 0.05 = 0.11 $^{**}p < 0.01$, $^{*}p < 0.05$ significant

employee married couples than dual employee married couples. On the basis of results it said that job of women had the profound effect on their thought process, feelings and emotions due to the burden of added responsibility of family and society on one hand and the respor related to their jobs on the other hand. Thus, it can be inferred that educational level and e status may impact the marriage in positive and negative ways; the overall satisfaction relies c such as love, trust, respect, happiness, conflict management and resolution, effective commu similar personal and family goals, and spending quality time together.

Thus, it can be concluded that life satisfaction has been related to the job, home mental illness, education, gender role attitude, happiness and success in life. Dual employee wives and husbands have to face various problems in her married life. They are cannot high pe her married life responsibilities because she is under pressure and stress as well as feels s living under pressure every time in her life, it directly affects her household work, relation spouse and other members of her family.

The calculated scores of correlation between mental health and life satisfaction showe no-3. The calculated Pearson Correlation value of mental health (Egocentrism, Alienation, Ex Emotional Unstability and Social Non-conformity) and marital adjustment are significant a level (2-tailed). It means the high positive correlation between mental health and life satisfacti single and double employee married couples. On the basis of results, it could be said th health has been reported as an important factor influencing an individual's various behaviours, happiness, and performance. If the mental condition is good, he/she can take various respc of a family, understand the complications and try to solve them, plan for future and adjust others by becoming mentally strong. Thus, mental health has been strongly correlate satisfaction.

CONCLUSION

The results of the present study very clearly suggest that no significant difference on ego alienation, and emotional un-stability but the significant difference in expression and social nonc among single and dual employee, married couples. Single employee married couple would l level life satisfaction than dual employee married couple. High-level positive correlation betwe health and life satisfaction among single and dual employee married couples.

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मानसशास्त्र पत्रिका

डिसेंबर, २०१६

अंक २४ व २५

मराठी मानसशास्त्र परिषद

नोंदणी क्र. एफ. १३२९३

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५१०, सदाशिव पेठ, पुणे – ४११ ०३०

दूरभाष – (०२०) २४२०७०००, २४४३०११०

Ph.D. Abstracts

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Marital Adjustment and Life Satisfaction among Single and Dual Employee Married Couples

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Marriage is a most important event in the life of every person. It is a commitment to love, happiness, and development of a very strong as well as the healthy family relationship. Today women's roles are changed. When married women work outside the home they encounter problems of harmonizing their two roles. In this situation, many problems are created in the family as well as working place. Dual-career families are growing in number as more women pursue advanced preparation for careers and subsequently join and remain in the workforce (Inglehart, 1979). Both husband and wife in a dual-career family pursue job sequences that require a high degree of commitment and that have a continuous developmental character. The couple may have to deal to deal with competition, coordination of domestic and parental tasks, and time management in general (Pleck, Stanines, & Lang, 1980; Rapoport & Rapoport, 1971).

Life-satisfaction is one of the indicators of 'apparent' quality of life. Together with indicators of mental and physical health, it indicates how well people thrive. Generally, life circumstances such as mental and physical health, social contacts, good income, education, and being in a relationship, increase life satisfaction. (Dolan, Peasgood, & White; 2008)

The significance of the present study may be assessed from two angles -theoretical and applied. Theoretically, this study will contribute in clarifying the role of the job as it influences the process of marital adjustment and life satisfaction of single and dual employee married couples. On the applied since, the study may help in knowing the influence of job on marital adjustment and life satisfaction of single and dual-employed married couples.

Operational Definitions

Marital adjustment means relationship overall feeling between husband and wife is happiness and satisfaction with their marriage as well as each other. Life satisfaction means how much satisfied he/she feels with his/her own life.

Lewis and Spanier (1979) concluded that the greater the rewards from spousal interaction, the greater the marital quality. Married couples with effective communication, self-disclosure, frequent successful communication, and understanding and empathy, are better adjusted to their marriages (Erickson, 1993). Marital satisfaction affects many other areas of human life as well such as physical and emotional health and relationship between couples, parents, and children as well (Finchamand Beach, 1999).

According to Palmore and Liukart (1972), life satisfaction has been defined according

to health status, social variables, like income level, family satisfaction, and organizational activities. It is relatively sensitive to changes in circumstances. Maynard (1993) indicated some evidence that as the number of family roles increases, scores on occupational adjustment and life satisfaction scales tended to increase. Masnain, Shahnawaz, and Sharma (2001) reported significantly more life satisfaction in husbands of working women than husbands of housewives.

Statement of the Problem

The problem was to investigate the difference of marital adjustment and life satisfaction among single and dual employee married couples.

Objectives

1. To find out the level of marital adjustment among single and dual employee married couples.
2. To search the level of life satisfaction among single and dual employee married couples.
3. To examine the relation between marital adjustment and life satisfaction among single and dual employee married couples.

Hypotheses

1. Single employee married couples would have better marital adjustment than dual employee married couples.
2. Single employee married couples would have higher level life satisfaction than dual employee married couples.
3. Marital adjustment and life satisfaction would have significant and positive correlation.

Variables

The independent variable is Types of Couples (single and dual employed married couples) and the dependent variables are marital adjustment and life satisfaction.

Research Methodology

Sample

The sample for the present study consisted of 300 married couples (150 single and 150 dual employees) selected through random sampling technique from Ahmednagar district in Maharashtra. The age range of the subjects varied from 20 to 45 Years.

Instruments

Marriage Adjustment Inventory (MAI): This inventory developed by Dr. C. G. Deshpande (2000) consists of 25 statements. Reliability of the scale is .83 as measured by split-half method using even-odd scores and validity measured against their personal adjustment scores applying Biserial correlation, it is .49

Life Satisfaction Scale (LSS): This scale developed and standardized by Dr. Q. G. Alam and Dr. Ramji Srivastava (2001) consists of 25 statements. The obtained quotient is .84. The validity of the scale was obtained by correlating it with Saxena's Adjustment

Inventory and Srivastava Adjustment Inventory. The quotient obtained is .74 and .84 respectively.

Procedure

Purpose and intent of the study was explained to each respondent. It was explained to them that the information gathered would be used only for the research purpose and everything, including their identity, would be kept highly confidential. The non-working wives were consulted at their respective homes only.

Each and every question in the inventories is clearly read out to the subjects. All the difficulties or confusions were clarified as far as possible. In this way better rapport is established and subjects usually give correct responses because they know they are being observed. Those subjects who do not co-operate were naturally set aside from the sample.

Results

The main purpose of the present study was investigating the level, difference and correlation between the marital adjustment and life satisfaction of single and dual employee married couples. For this purpose investigator formulated three hypotheses. Results along the hypotheses are shown in the tables.

Table 1: Statistical Values on MAI for Single and Dual Employee Respondents

Types of Couples	N	Mean	Std. Deviation	t
Single Employee Married Couples	150	53.42	5.11	6.41**
Dual Employee Married Couples	150	58.58	8.42	

df=298, 0.01=2.97, 0.05=1.97 **P < 0.01

The Table 1 shows the marital adjustment of the sample selected in the present investigation. The MAI performance for single employee married couples gives rise to mean 53.42 and standard deviation 5.11 and for dual employee married couples to mean 58.58 and standard deviation 8.42. The calculated't' value 6.41 is significant at 0.01 level. It means that there is significant difference on marital adjustment among single and dual employee married couples. This indicates that the single employee married couples better adjustment than dual employee married couples. Figure visualizes this point clearly.

Figure 1: MAI Means for Single and Dual Employee Married Couples

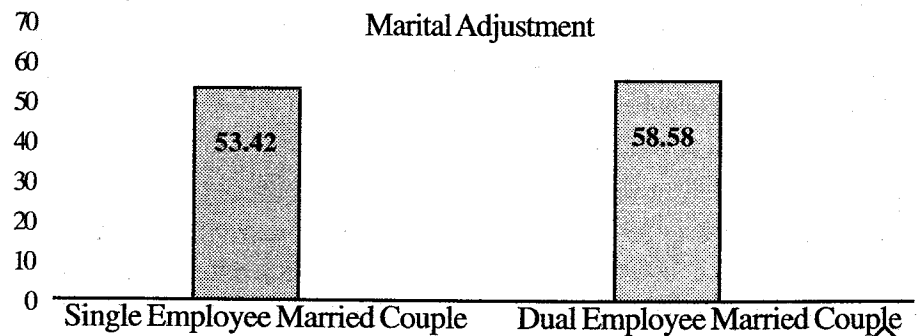

Figure 1 shows mean values of MAI among single and dual employee married couple. It indicates that dual employee married couples have higher level marital adjustment than single employee married couples.

Table 2: Statistical Values on LSS for Single and Dual Employee Respondents

Types of Couples	N	Mean	Std. Deviation	T
Single employee married couples	150	40.16	3.03	4.72**
Dual employee married couples	150	35.44	2.57	

df=298, 0.01=2.97, 0.05=1.97 **P < 0.01

The above table shows the life satisfaction of the sample selected in the present investigation. The LSS performance shows that for single employee married couples mean is 40.16 and standard deviation is 3.03. For the dual employee married couples mean is 35.44, standard deviation is 2.57. The calculated t value 4.72 is significant at 0.01 level. It means that there is significant difference in life satisfaction among single and dual employee married couples. This indicates high level life satisfaction of single employee married couples than dual employee married couples.

Figure 2: LSS Means for Single and Dual Employee Married Couples

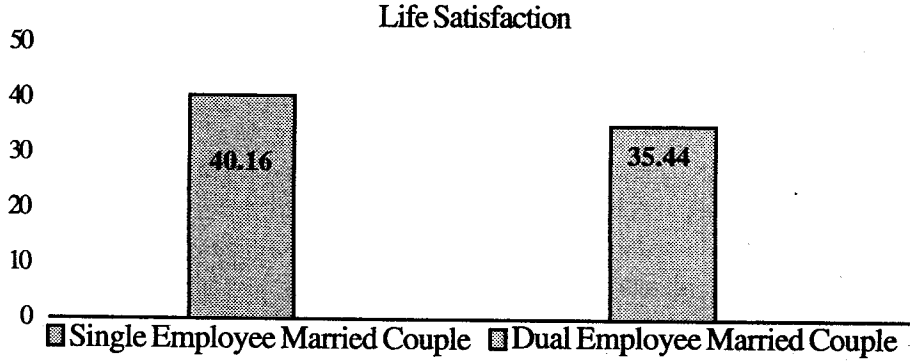

Figure 2 shows mean values of life satisfaction among single and dual employee married the couple. It indicates that single employee married couples have better life satisfaction than dual employee married couples

The obtained correlation coefficient between marital adjustment and life satisfaction in the present investigation is .643. It is significant at 0.01 level with 298 df. This indicates that the single and dual employee married couples' marital adjustment and life satisfaction is positively and significantly correlated.

Discussion

The present study focuses on the marital adjustment and life satisfaction of single and dual employee married couples. The calculated 't' value of marital adjustment (6.41) is significant at 0.01 level. It indicates that marital adjustment has been related to the job, home stresses, mental illness, education, gender role attitude, happiness and success in

life. Dual employee married women has to face marital adjustment problems in her married life. She also cannot high perform for her married life responsibilities because she is under pressure and stress as well as if a married woman feels stress and living under pressure every time in her life, it directly affects her household work, relationship with spouse and other members of her family. So many difficulties are created for marital adjustment among dual employee married couples.

The calculated 't' value (4.72) of life satisfaction is significant at 0.01 level. This indicates that the high-level life satisfaction of single employee married couples than dual employee married couples. On the basis of results it could be said that job of women had the profound effect on their thought process, feelings and emotions perhaps due to the burden of added responsibility of family and society on one hand and the responsibilities related to their jobs on the other hand. Thus, it can be inferred that educational level and economic status may impact the marriage in positive and negative ways; the overall satisfaction relies on values such as love, trust, respect, happiness, conflict management and resolution, effective communication, similar personal and family goals, and spending quality time together.

Thus, it can be concluded that life satisfaction has been related to the job, home stresses, mental illness, education, gender role attitude, happiness and success in life. Dual employee married wives and husbands have to face various problems in her married life. They are cannot high perform for her married life responsibilities because she is under pressure and stress as well as feels stress and living under pressure every time in her life, it directly affects her household work, relationship with spouse and other members of her family.

The calculated scores of correlation between marital adjustment and life satisfaction of single employee married couples and dual employee married couples are significant at the 0.01 level (2-tailed). It means there is a high positive correlation between marital adjustment and life satisfaction among single and double employee married couples.

It indicates that over the course of life, people learn to establish different relationships, with different values, expectations and commitments. One of those relationships is the marital relationship. For A good marital relationship marital adjustment is essential. Marital satisfaction appears to be an important factor of life satisfaction. So, there is positive correlation between mental health and marital adjustment among single and double employee married couples.

Conclusions

1. Single employee married couple have better marital adjustment than dual employee married couple.
2. Single employee married couple have high level life satisfaction than dual employee married couple.

3. High level positive correlation between marital adjustment and life satisfaction among single and dual employee married couples.

Implications

The findings of the current study can be fruitful for psychologists, researchers and counsellors. It will be helpful for understanding the importance of marital adjustment in life satisfaction among single and dual employee married couples.

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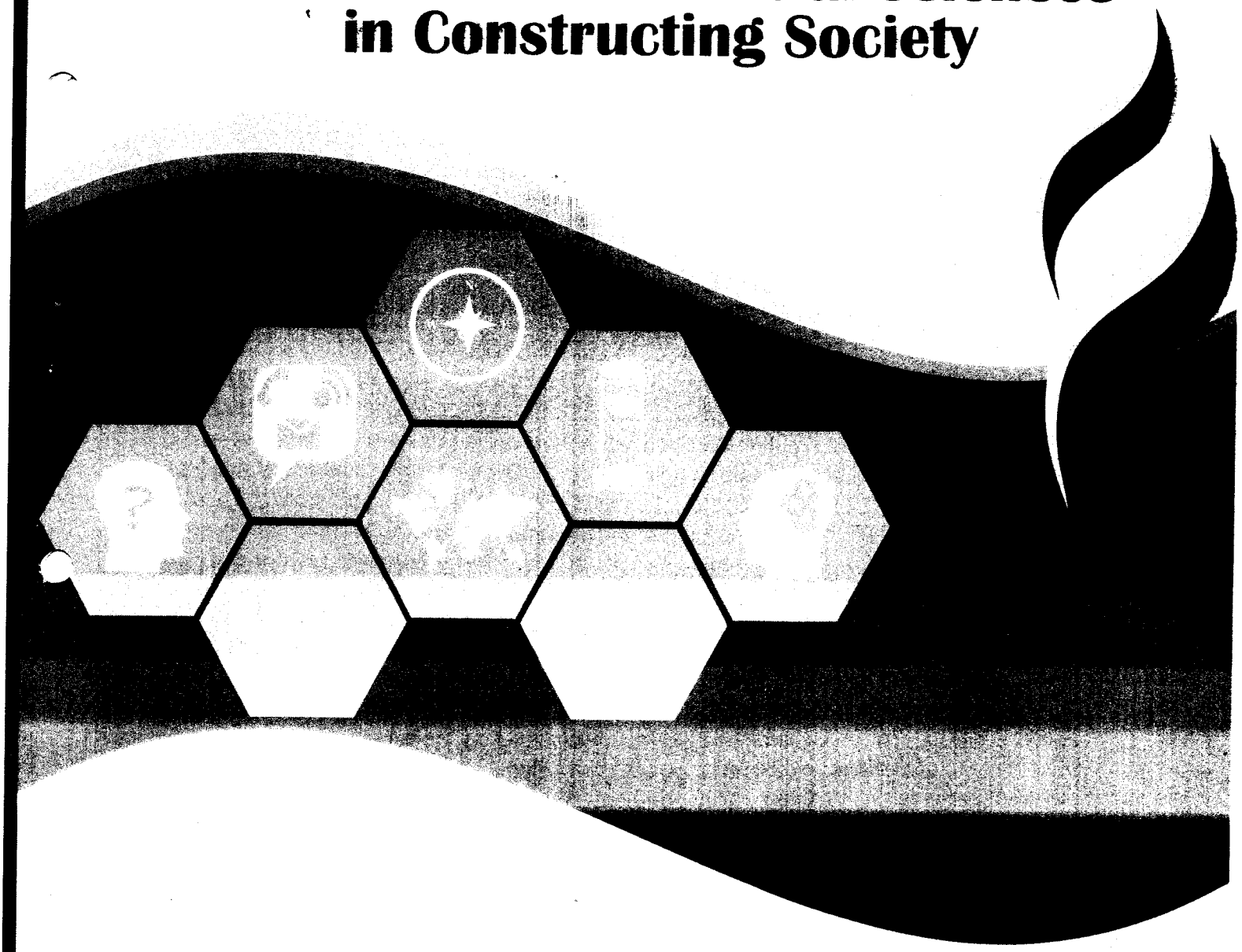

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ANALYTICAL STUDY OF MENTAL HEALTH AMONG SINGLE AND DUAL EMPLOYEE MARRIED COUPLE

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ABSTRACT

Aim:- Mental health means the person is not only free from any physical and psychological illness but he/she should be fit socially too as well as no health without mental health. The present study aimed to investigate the level and difference of mental health among single and dual employee married couples.

Methods:- This study was done on 300 married couples (150 single and 150 dual employees) through random sampling technique. Mithila Mental Health Status Inventory was used to collect data. Data were analyzed by using Mean, S.D and t-test.

Results:- Result proves it no significant difference on mental health's areas of egocentrism, alienation, and emotional un-stability but a significant difference in expression and social nonconformity, among single and dual employee married couples. Single employee married couples would have better mental health than dual employee married couples.

Keywords: Mental Health, Single and Dual EmployeeMarried Couple.

Marriage is a most important event in the life of every person. It is a commitment to love, happiness, and development of a very strong as well as the healthy family relationship. Today women's roles are changed. When married women work outside the home they encounter problems of harmonizing their two roles. In this situation, many problems are created in the family as well as working place. Dual-career families are growing in number as more women pursue advanced preparation for careers and subsequently join and remain in the workforce (Inglehart 1979). Both husband and wife in a dual-career family pursue job sequences that require a high degree of commitment and that have a continuous developmental character. The couple may have to deal to deal with competition, coordination of domestic and parental tasks, and time management in general (Pleck, Stanines, and Lang 1980; Rapoport and Rapoport 1976).

In dual-career couples, typical gender roles are compromised since both the partners are earners. This, in turn, may have a direct bearing on the dynamics of trust in a marital relationship. In order to have a satisfied matrimonial relationship, male spouse in a dual career couple may have to be more egalitarian and trusting towards his wife since she has to be amongst many male colleagues at her workplace in contrast with a housewife who has minimal contact with males outside of her family. Furthermore, issues like division of labour at home, child rearing, work hours, work-family conflict, and nature of job could strain the marital relation. The relationship of interactional patterns to the marital satisfaction of single and dual-career couples depends on most likely upon certain factors e.g. equality and reciprocity in the relationships, mutual give and take, spousal support, to be involved in each other's careers, having an equal commitment to the relationship, and to practice equal decision-making. Research has documented that sharing non-traditional sex-role attitudes and the husbands approving of their wives' careers were related to higher marital satisfaction

(Sprunt and Howes, 2011).

The significance of the present study may be assessed from two angles -theoretical and applied. Theoretically, this study will contribute in clarifying the role of the job as it influences the process of mental health of single and dual employee married couples. On the applied since, the study may help in knowing the influence of job on mental healthof single and dual-employed married couples.

Statement of the Problem: -

"The analytical study of mental health among single and dual employee married couples."

Review of previous Researchers:-

The researchers has been reviewed various literature with mental healthof single and dual employee married couples. The sense of achievement, income and recognition in society enable working women to consider their jobs as rewarding and psychologically satisfying. Studies of Voydanoff and Donnelly (1989) found that worker role reward value has greater significance to mental health of working women.On the contrary, being confined to the home is considered as important factor of poor mental health among non-working women-Different studies comparing the psychological health of working women and non-working women report that employed women are more satisfied in their life than non-working women. Burke and Weir (1976) in their study found to satisfaction and power mental and physical health among housewives.Duxbury and Higgins (1991) did a study on Saskatchewan workers, in which they tested a number of different indicators of mental health such as job stress, perceived stress, burnout and depression among dual-career couples. The result shows that 30% of workers reported high level of job stress which is linked to factors such as poor physical and mental health, high family stress, marital conflict and poor performance of work and family roles. Jason (2009), in his research of dual career families, has pointed out that couples' mental and physical health are related in these families and financial problems are very important to decrease both mental health and physical health. Dual-career couples have to fulfil multiple roles and are confronted with demands and stressors from the work and private life domains (Domsch and Ladwig, 2007). Elloy and Smith (2003), for instance, found that Dual-career couples experienced more stress, work-family conflict, family conflict, role ambiguity, role conflict and overload than single-career couples.

Objectives:-

1. To find out the level of mental health among single employee married couples.
2. To examine the difference in various areas of mental health between single and dual employee married couples.

Hypotheses:--

H1- Single employee married couples would have better mental health than dual employee married couples.

H2- Significance difference in various areas of mental health between single and dual employee married couples.

Variables:-

IV- Types of couples (single and dual employee married couples).

DV- Mental health and various areas of mental health

Research Methods:-

Sample and data:

The sample for the present study consisted of 300 married couples (150 single and 150 dual employees) selected through random sampling technique from Ahmednagar district in Maharashtra.

Data collection tools:

1. Mithila Mental Health Status Inventory:- Standardized by Anand Kumar andGiridhar Thakur (1984).

Statistical Treatment: The data collected was analysed by Mean and S.D. and t-testwas

used for hypotheses testing. Statistics were done using SPSS.

Data Analysis and its Interpretation:-

The main purpose of the present study was investigating the level and difference betweenthe mental health of single and dual employee married couples. For this purpose investigator formulated various hypotheses. Results are shown in below given tables.

Table-1 Table shows value of mental health areas among single-dual employee respondents.

Areas of Mental Health	Types of couples	N	Mean	Std. Deviation	t
Ego Centrism	Single employee Married Couples	150	20.62	1.62	1.58
	Dual employee Married Couples	150	20.26	2.22	
Alienation	Single employee Married Couples	150	17.57	3.01	0.29
	Dual employee Married Couples	150	17.47	2.75	
Expression	Single employee Married Couples	150	19.13	2.84	2.98**
	Dual employee Married Couples	150	20.21	3.40	
Emotional Un stability	Single employee Married Couples	150	16.58	2.33	1.79
	Dual employee Married Couples	150	17.18	3.36	
Social Non Conformity	Single employee Married Couples	150	16.23	1.60	2.53*
	Dual employee Married Couples	150	16.85	2.51	

df=298, 0.01=2.97, 0.05=1.97

**P < 0.01, *P< 0.05 significant

Men and women in dual-career couples consider marriage and career as vital components of their personal identity. When one or more parts of their identity are threatened or when stress creates tension in or between the domains these couples are more likely to engage in efforts to preserve both parts of self. The attempt to manage conflictswhile staying true to personal identities can be challenging and many times requires relational efforts and strategies to reduce inter-role conflict.External sources of support serve as an important source of encouragement, empathy, and understanding for the dual-career spouse. Another vital equally as or more important source is their partner.

Thus, dual employee married couples are more expressive to the subject than single employee married couples.

Dual employee married couples are more social non-confirmative to the subject than single employee married couples ($t(298) = 2.53$, $p<0.05$).

The social non-conformity area of mental health would provide a clue to whether the individual was aligning with the existing social system or against it. A high score in this area will indicate people to be narcotic. Such people would like to cut them off from affected participation in the ordinary social situation.

Generally, five stress domains that impact dual employee married couples, that is work overload, balancing work and marital roles, individual identity conflicts, decreased social networks and conflicts between personal and societal norms. Dual-career couples often find themselves with many obligations and not enough time in the day to fulfill them. One of the consequences of the time demands of managing marriage and career is the lack of time available to form and nurture social relationships.

Husband and wife in dual employee married couples consider marriage and career as vital components of their personal identity. When one or more parts of their identity are threatened or when stress creates tension in or between the domains these couples are more likely to engage in efforts to preserve both parts of self.

External sources of support serve as an important source of encouragement, empathy, and understanding for the dual employee spouse. Another vital equally as or more important source is their partner.

Thus, dual employee married couples are more social non-confirmative to the subject than single employee married couples

The obtained't' value of the egocentrism is 1.58, alienation is 0.29 and emotional un-stability is 1.79. In order to be significant at 0.05 level, the minimum required value of't' is 1.97; since the computed value of 't' is less than what is required to be significant 0.05 level. Therefore, it could be inferred that the difference between the means is not significant. In other words, the difference observed in the means could be attributed to the factor of chance only. Still, in overall mental health, there is

asignificant difference between single employee married couples and adual employee married couples. The obtained 't' value of these groups is 2.49(t(298) = 2.49, p<0.05). In order to be significant at 0.05, the minimum required value of 't' is 1.97. While at 0.01 level it is 2.59. Since the obtained value is larger than what is required to be significant at 0.05 level.

Mental health of all person depends on upon various factors such as financial soundness, social relations, relations with family members as well as relatives and with outside people, friends, co-ordination with people at working place as well as at home and so on. It can be said that most of the time of a person is spent at working place and at the second place that is his home. The mental health of a person would be good if he feels comfortable at working place and at home.

Conclusion:-

To sum up, we might conclude that no significant difference on egocentrism, alienation, and emotional un-stability but the significant difference on expression and social nonconformity, among single and dual employee married couples. Single employee married couples would have better mental health than dual employee married couples.

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Original Research Article

OXYGEN CONSUMPTION, AMMONIA EXCRETION AND O: N RATIO OF FRESHWATER BIVALVE, *LAMELLIDENS MARGINALIS* DURING WINTER SEASON WITH SPECIAL REFERENCE TO BODY SIZE

P. Ramanlal Gugale, A. N. Vedpathak and S.S. Kharache

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ABSTRACT: The scaling of metabolic rates with body mass is one of the best known and most studied characteristics of aquatic animals. We studied here how size is related to oxygen consumption, ammonia excretion and O: N ratio in Freshwater Bivalve Mollusc *Lamellidens marginalis* species in an attempt to know how size specific changes affect their metabolism. The freshwater bivalve molluscs with specific size i.e. small (77-79 mm in shell-length) and large (90-93 mm in shell-length) were selected for experimental work from Bhima River at Siddhatek on December and January during winter. The adult bivalve molluscs with small size reported high value in oxygen consumption and O: N ratio but ammonia excretion was low value in small sized bivalves compared to large ones. The results are discussed in the glow of metabolic processes in fresh-water bivalve molluscs.

KEYWORDS: Mollusc, *Lamellidens marginalis,* aquatic animals, ammonia excretion, oxygen consumption.

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INTRODUCTION

Mollusca, a word meaning 'soft', includes a variety of invertebrate animals, with soft unsegmented body having a slippery skin and commonly sheltered in a hard calcareous shell of their own secretion. Food ingestion, ammonia excretion, and oxygen consumption rates are the key elements of bioenergetic models because they reflect the energy ingested (I), the energy lost as nitrogen (U), and the physiologically useful energy (R) [1]. In *Octopus vulgaris* (Petza et al. 2006) and *Octopus maya* [2] from total ingested energy (100%), U ranging from 2 to 14% and R between 23 and 68%. Bioenergetic models are commonly used to estimate growth or consumption in aquatic animals and are very useful for estimating how types of food modulate the destination of ingested energy. In fact, energetic models allow us to estimate food digestibility, important data for balanced food designs ([1]. Rate of oxygen consumption in these animals are influenced by activity, body size, stage in the life cycle and time of the day, in addition to by previous oxygen experience and genetic background [3]. The metabolic rate by measuring oxygen consumption rate of *S. diphos* in relation to the various environment factors like body size, body weight , temperature, salinity air exposure, starvation and diurnal rhythm [4]. The daily rhythms of oxygen consumption in the *Mytilus galloprovicialis* studied by [5]. Also oxygen consumption is dependent on various environmental factors and endogenous regulation of reproduction is main synchronizers of the rhythm. Many authors have showed that ammonia in general is a major nitrogenous excretory product of bivalves and there occurs a profound difference in loss of nitrogen between different sizes and seasons [6]. The body weight or body size of the bivalve mollusc is an important parameter, which influencing the pattern of metabolic responses. In bivalve molluscs, the relationship between the rate of ammonia excretion and the body size can be variable due to a disproportionate reliance of protein catabolism for energy production [7, 8]. [9] Stated that in bivalve molluscs the relationship between ammonia excretion rates and body size can be variable due to a disproportionate reliance on protein catabolism for energy production by small individuals and O: N ratio was shown to vary considerably with in complex interactions with the season, temperature and ration in *Mytilus edulis*.

[10] Observed increased oxygen consumption and ammonia excretion linear with increase in weight and decreases with period of starvation in *Abalone sulculus diversicular.* According to [11] reported that oxygen consumption and ammonia excretion of bivalve is a function of body weight. Excretion rate varies between species of bivalves, as well as with individual size, temperature, stage in reproductive cycle and food availability [12, 13, 14, and 15]. The changes in the relationship between excretion rate and body size may be explained in part by seasonal changes in the synthesis and utilization of nitrogenous compound as substrates for energy metabolism. The rate oxygen

काय नाकारायचे हे ठरविण्याचे

: आजचं साहित्य' पुण्यभूषण
आ त ८३ वे अखिल
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निक मराठी साहित्य आणि
७, पृ.क्र.१६८.
ठी भाषा', 'कर्मवीर प्रकाशन',

प्रसार माध्यमे आणि भाषा कौशल्ये

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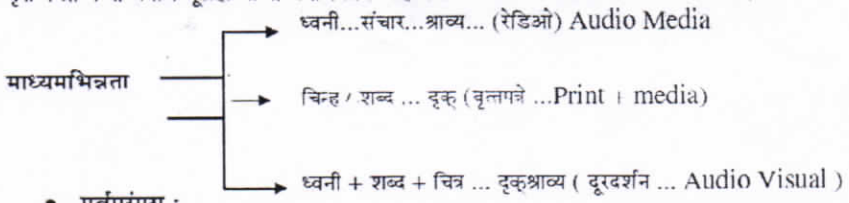
- **प्रसारमाध्यमे : अर्थ, स्वरूप व परंपरा :**

'प्रसारमाध्यम' ही संज्ञा 'प्रसार' + 'माध्यम' या दोन शब्दांपासून निर्माण झाली असून, त्यातील 'प्रसार' या शब्दाची शब्दकोशांमध्ये प्रसार > प्रसारन > प्रस्तुत करणे > संचार > संचारन > फैलना अशी अर्थोत्पत्ती पहावयास मिळते. गायीच्या अंगावर थाप टाकताच ज्याप्रमाणे कंपने निर्माण (इंद्रियगोचर) होतात किंवा स्थीर पाण्यात खडा टाकताच ज्याप्रमाणे पाण्याचे तरंग निर्माण होतात, त्याप्रमाणे प्रसारन पावणे ही प्रक्रिया असते. अर्थात याठिकाणी आपणास मानवी जीवन व्यवहारातील पंचेंद्रियांना जाणवणाऱ्या संवेदनांशी संबंधित प्रसारनव्यवहाराचा विचार करावयाचा आहे.

विशिष्ट माध्यमातून या संवेदनांचा प्रसार करणे म्हणजे 'प्रसार माध्यमे' होय. आधुनिक काळात उदयास आलेल्या दृक व श्राव्य माध्यमांचे मूळही या माध्यमभिन्नतेत आहे.कसे ते खालील आराखड्यावरून लक्षात येईल.



- **पूर्वपरंपरा :**

आजचे युग हे माहिती-तंत्रज्ञानाच्या विस्फोटाचे युग आहे.उगवणारा प्रत्येक दिवस काहीतरी क्रांतिकारक किंवा धक्कादायक तंत्रज्ञान घेऊन आपणापुढे येतो.वृत्तपत्र, आकाशवाणी, दूरदर्शन या माध्यमांवर मात करून भ्रमणध्वनी सारख्या माध्यमाने सारे विश्व आपल्या मुठीत आणले आहे.'लोकरंजन' व 'लोकप्रबोधनाचे' सर्वांत प्रभावी साधन असणाऱ्या या माध्यमांनी आज आपले मन आणि मेंदूही आपल्या ताब्यात घेतला आहे.

पूर्वी आपल्याकडे हरिदास, पुराणिक, कीर्तनकार, प्रवचनकार, शाहीर, दवंडी पिटणारे, वासुदेव, पिंगळा, गोंधळी या लोककलावंतांकडून समाजप्रबोधन व लोकरंजनाचे फार मोठे कार्य पार पडले. त्याहीपूर्वी संजयाने धृतराष्ट्रास आपल्या दिव्यदृष्टीने कुरूक्षेत्रावरील स्थितीचे दर्शन घडविले असे म्हटले जाते, तर कंसाने देवकीला होणाऱ्या मुलींना आपटून मारण्याचा सपाटा चालविला असतांना एक मुलगी हातातून निसटली व 'आकाशवाणी' झाली अशी चमत्कारकथा सांगितली जाते. यामागील श्रद्धा-अंधश्रध्देच्या गोष्टी बाजूला ठेवून, आपणांस प्रसारमाध्यमांशी कोठेतरी या सर्व संदर्भांचे नाते असल्याचे जाणवते.

मुद्रणकलेच्या आगमनापाठोपाठ मुद्रित माध्यमांचा उदय झाला, तर ध्वनिलहरींना पकडता येते हे शोधल्यावर आकाशवाणीसारख्या माध्यमांचा उदय झाला. दृक्श्राव्य प्रतिमा पटलावर जिवंतपणे आणण्याच्या प्रयत्नातून दूरदर्शनसारख्या माध्यमांचा उदय झाला.

- **उद्दिष्टे :**

या प्रसारमाध्यमांची प्रारंभीची उद्दिष्टे खूप उच्च व उदात्त होती. त्यात

1) लोकप्रबोधन व ज्ञान प्रसार करणे,
2) लोकरंजन व लोकसंस्कृतीचा प्रसार-प्रचार करणे,
3) विविध विचार, सूचना, योजना, वार्ता सामान्य जनतेपर्यंत पोहोचविणे,
4) माहितीची देवाणघेवाण करणे,

SAKSHAM SAMIKSHA त्रैमासिक

सक्षम समीक्षा

मराठी भाषा-वाङ्मय व संशोधन यासाठी असलेला मंच

संपादक : प्रा. डॉ. शैलेश विश्वनाथ त्रिभुवन
वर्ष : ६ अंक : पहिला, एप्रिल-मे-जून -२०१६, मूल्य : २० रु.
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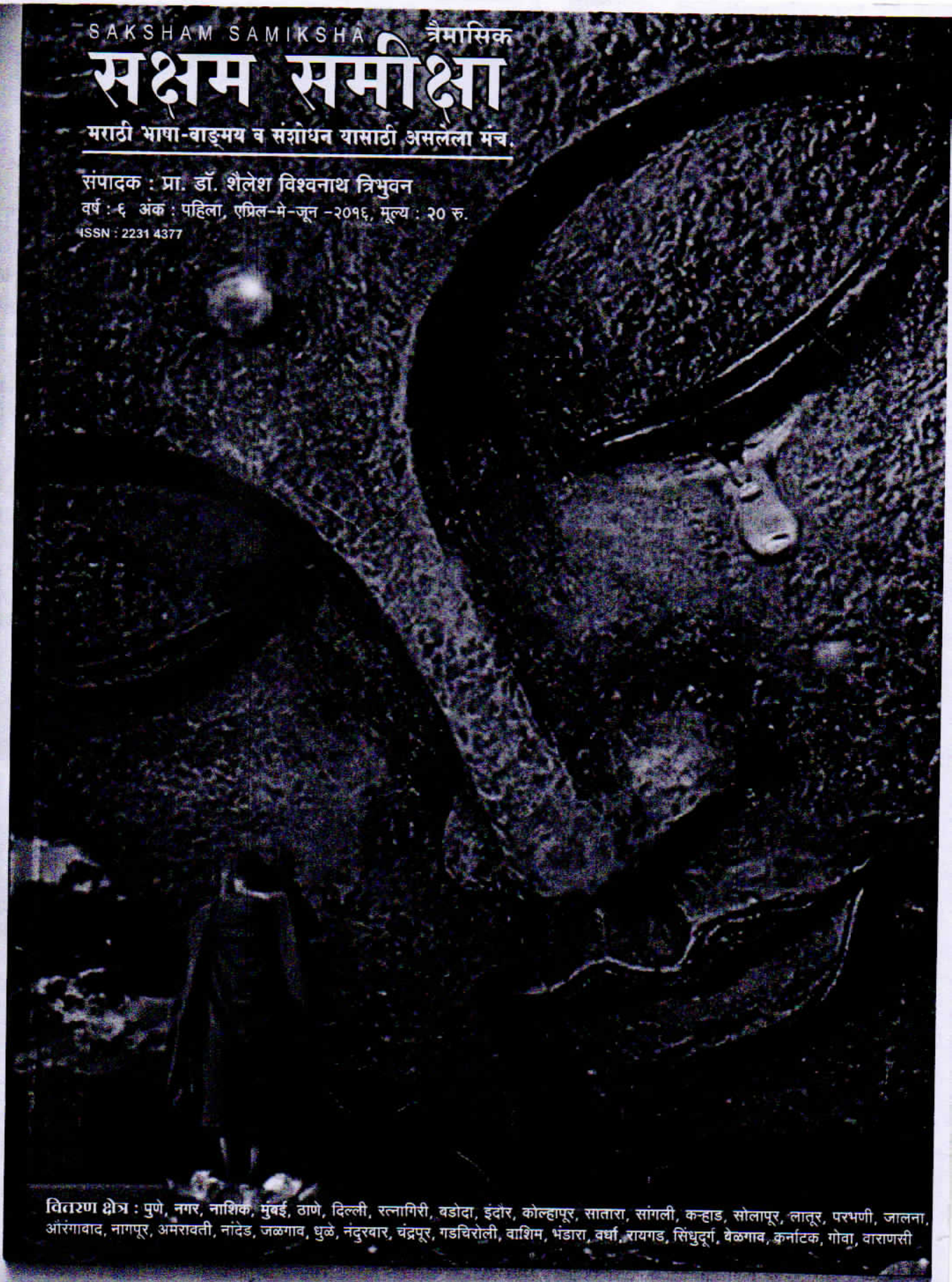

वितरण क्षेत्र : पुणे, नगर, नाशिक, मुंबई, ठाणे, दिल्ली, रत्नागिरी, वडोदा, इंदोर, कोल्हापूर, सातारा, सांगली, कऱ्हाड, सोलापूर, लातूर, परभणी, जालना, औरंगाबाद, नागपूर, अमरावती, नांदेड, जळगाव, धुळे, नंदुरबार, चंद्रपूर, गडचिरोली, वाशिम, भंडारा, वर्धा, रायगड, सिंधुदूर्ग, बेळगाव, कर्नाटक, गोवा, वाराणसी

2016

विस्थापित या संकल्पनेचा सर्वांगीण परिचय

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मोबाईल : ९०९६८७५७३७

मराठी कादंबरीतील विस्थापितांचे चित्रण (इ. स. १९४५ ते २००५) या विषयाकडे वळण्यापूर्वी विस्थापित म्हणजे नेमके कोण, विस्थापित होण्यामागील विविध कारणे कोणती, महाराष्ट्रातील विस्थापितांचा इतिहास, विस्थापितांची आजची वस्तुस्थिती, विस्थापितांसाठी आजपर्यंत झालेले लोकलढे, आंदोलने, संघर्ष, विस्थापानाचे बदलते स्वरूप व वर्तमान अशा अनेकविध मुद्द्यांचा सविस्तर विचार मांडणे महत्त्वाचे ठरते. तसे पाहता विस्थापित ही खूपच व्यापक, संमिश्र, गुंतागुंतीची संकल्पना आहे. कोणत्याही संकल्पनेचा विचार हा समाजसापेक्ष असतो. पर्यायाने साहित्य हीदेखील एक समाजसापेक्ष कला असल्यामुळे हा अभ्यास विस्थापित या संकल्पनेच्या आधारे करणे क्रमप्राप्त ठरते. तेव्हा प्रथम आपणास विस्थापित या संकल्पनेचा सर्वांगीण परिचय करून घेणे गरजेचे आहे.

विस्थापित : अर्थ व स्वरूप : स्थापित, प्रस्थापित, विस्थापित अशा काही संज्ञा आपण वेळोवेळी वापरतो, ऐकतो, वाचतो. ह्या परस्परविरोधी संज्ञांचा संबंध काहीतरी नवे स्थापन करण्याशी, त्यावर सत्ता गाजविण्याशी वा काहीतरी विसर्जित करून दुःख भोगण्याशी आहे. तशा ह्या संज्ञा विविध अर्थच्छटा असलेल्या संज्ञा आहेत. स्थल, काल, व्यक्ती, देश, प्रांत व तत्त्वज्ञान ह्यांच्यानुसार त्यांचे वेगवेगळे अर्थ घेतले जातात.

उदा. स्थापित करणे म्हणजे काहीतरी नवे निर्माण करणे, ठेवणे, उभे करणे.

प्रस्थापित म्हणजे सत्ताधारी, मक्तेदार ठाण मांडून बसलेले वगैरे.

विस्थापित म्हणजे उखडले गेलेले, फेकले गेलेले, हाकलले गेलेले, स्थलांतरित वगैरे.

मराठी, हिंदी, इंग्रजी ह्या शब्दकोशांमध्ये इतर संज्ञांचे अर्थ सांगण्याच्या निमित्ताने विस्थापित या संज्ञेचा उल्लेख येतो. तो असा :

अ) पीडित– (विशेषण) आपद्ग्रस्त, धरणग्रस्त, विस्थापित ब) Dislocate... To displace to put limb out of joint, to put gear. (जोड हटाना/सांधा निखळणे, उखाडना/उद्ध्वस्त होणे, स्थान से हटाना/देशोधडी लावणे) क) Disloge... To force out of position. (वासस्थानसे हटाना/ढकलणे/हटवणे, हुसकणे, तळी उचलणे)

ड) Refugee. A person who flees for refuge[3] इ) स्थलांतरित – हंगामी वा कायमचे गाव, देश, प्रदेश सोडून गेलेले. वरील अर्थोत्पत्तींचा विचार करता विस्थापित ही काहीशी संमिश्र संज्ञा आहे, असे दिसते. यातील 'Dislocate' ही संज्ञा संशोधनविषयाच्या दृष्टीने अधिक समर्पक व अर्थपूर्ण वाटते. कारण या संज्ञेचा संबंध एका समूहाशी आहे, तर 'Dislodge' मध्ये समूह नसतो. तसेच 'Refugee' ही संज्ञा परकीय आक्रमणे, दंगली, युद्ध ह्यांच्यामुळे शरण आलेल्या वा आश्रय घेतलेल्या लोंढ्यांशी संबंधित आहे. अर्थात हा सर्वांमध्ये सापडलेल्या लोकसमूहांना वा व्यक्तींना जे शारीरिक, मानसिक दुःख भोगावे लागते, त्यांची जातकुळी एकच असते.

महाराष्ट्रातील विस्थापित आणि मराठी कादंबरी
प्रकाशक :
स्नेहवर्धन प्रकाशन, पुणे ३०.
प्रथम आवृत्ती :
१ जानेवारी २०१५,
पृष्ठे : १४४,
मूल्य : १४०/– रु.

देशकालमानाप्रमाणे देखील या संज्ञेच्या अर्थच्छटा बदलतात, असे दिसून येईल. उदा. प्राचीन काळी सतत होणाऱ्या लढाया, आक्रमणे, तसेच महामारीसारखे साथीचे रोग, दुष्काळ ह्यांच्यामुळे नागरिकांवर स्थलांतरित होण्याची वेळ येई. आजही अशी स्थलांतरे जगभर वेगवेगळ्या कारणांनी होताना दिसतात. हे स्थलांतर कधी हंगामी, तर कधी कायम स्वरूपाचे असते. उदा. ऊसतोडणी मजूर, वीटभट्टी कामगार, चिरेखाणकामगार, गोदीकामगार ह्यांचे स्थलांतर उत्पन्न व पर्जन्य ह्यांच्यावर आधारलेले हंगामी स्वरूपाचे असते; परंतु धरणे,

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मराठी संशोधन आणि आंतरविद्याक्षेत्रीय संशोधन

संपादक
डॉ.शिरीष लांडगे
प्रा.डॉ.संजय दरवडे

11

खाउजा विरोधी आंदोलने व मराठी कादंबरी

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राधाबाई काळे महिला महाविद्यालय, अहमदनगर

****

• **प्रस्तावना :**

'खाउजा' हा अलीकडील परवलीचा शब्दप्रयोग आज प्रत्येकाच्या ओठांवर चर्चिला जाताना दिसतो. 'खाजगीकरण-उदारीकरण- जागतिकीकरण' ह्यांच्या परिघात संपूर्ण जगाला आणण्यासाठी अमेरिकन अर्थनीती अटीतटीने प्रयत्न करताना दिसते. जगावर सत्ता गाजविण्याच्या हव्यासातून युनोच्या माध्यमातून गॅट, आंतरराष्ट्रीय नाणेनिधी, जागतिक बँक, डंकेल प्रस्ताव ह्यासारख्या कायद्यांची व संस्थांची निर्मिती त्यासाठी झालेली आहे. संपूर्ण जगाची चव एकच करण्याचा मनसुबा त्यामागे आहे. 'कोक' हे त्याचे प्रतीक आहे.

अशा ह्या जागतिकीकरणाची खरी सुरुवात झाली ती इ.स. १८५० ते १९२० ह्या काळात. औद्योगिक क्रांतीच्या उदयाचा व भरभराटीचा हा कालखंड आणि त्याचे केंद्र होते इंग्लंड.[१] भारताचा वापर त्यावेळी कच्च्या मालाचे आगर आणि पक्क्या मालाची बाजारपेठ ह्यासाठी केला गेला. हळूहळू भारतातच कापडगिरण्या, कारखाने, खाणउद्योग, रस्ते, लोहमार्ग, तारायंत्रे ह्यासारख्या मूलभूत सोयीसुविधांची पायाभरणी झाली आणि भारतात उद्योगपर्व सुरू झाले. टाटा, बिर्ला ह्यांच्यासारख्या उद्योगपतींचा उदय ही त्याचीच परिणती आहे. भांडवलशाही अर्थव्यवस्थेचा हा पायरव होता. त्यातूनच शहरीकरण, धरणे, वीज प्रकल्प होऊ लागले. पर्यायाने स्थलांतरे होऊ लागली. इंग्लंडधार्जिणे प्रकल्प राबविताना त्यांच्या दुष्परिणामांकडे साफ दुर्लक्ष केले गेले. इ.स. १९१६ मध्ये 'औद्योगिक आयोगा'ची स्थापना केली गेली. ह्या आयोगाचे प्रत्यक्ष फलित म्हणजे भांडवलदारांची ताकद वाढली. सत्ता-संपत्तीचा हव्यास वाढू लागला. "निसर्गसंपत्तीवर आपला पिढीजात हक्क असल्यागत समाजसत्ता उपभोगणाऱ्या अत्याधुनिक टोळ्या आजही आपल्या भोवती आहेत."[२]

जागतिकीकरणाचा राक्षसी आविष्कार असणारा दुसरा टप्पा सुरू झाला तो १९९० साली. ह्याचवर्षी बर्लिनची भिंत पडली. हा जागतिकीकरणाचा संकेत होता. ह्या कालावधीतच शीतयुद्ध, संगणकप्रणाली, उपग्रह, फायबर ऑप्टिक्स, मोबाईल, इंटरनेट, मायक्रोचीप, डिजिटल, नॅनो टेक्नॉलॉजी ह्या सर्वांच्या माध्यमातून संपूर्ण जगच एकसंध बाजारपेठ बनू पाहत आहे. निसर्गाची आणि समस्त मानवजातीची हानी करणारे विनाशकारी प्रकल्प, खनिज, वायू, तेल उत्खनने, जंगलतोड, वापरा आणि फेका नीती, महाकाय धरणांची निर्मिती, रासायनिक प्रकल्प, महामार्ग, उड्डाणपूल, मॉल्स, पर्यटनकेंद्रे, मनोरंजनस्थळे, रेल्वेमार्ग, विमानतळे, आकाश, पृथ्वी, वायू ह्यांच्यावरही सत्ता गाजविणारी केंद्रे अशा एक ना अनेक बाबी आज आपणा सर्वांना भयचकित करीत आहेत. परंतु ह्या सर्वांच्या प्रत्यक्ष-अप्रत्यक्ष परिणामांमधून पर्यावरणाची हानी, महापूर, वादळे, भूकंप, ग्लोबल वॉर्मिंगची समस्या आणि विस्थापन, दुष्काळ-भूकबळी, अकल्पित रोग, ओझोनचा पडदा पातळ होणे ह्यांच्यासारख्या समस्यांचादेखील उद्भव झाला आहे. विकास की विनाश, अशी संभ्रमित परिस्थिती आज आपणापुढे उभी राहिलेली दिसते. ह्या सर्वांवर नियंत्रण ठेवणारे व त्या त्या देशाची सांस्कृतिक, सामाजिक, आर्थिक व [illegible] कायद्यांची निर्मिती व 'सी.आर. झेड.' सारख्या कायद्यांना मुळातून नष्ट करण्याचा प्रयत्न चालला आहे. अधिक आर्थिक लाभासाठी जागतिक बँका वारेमाप निधीचा पुरवठा करून अविकसित व विकसनशील राष्ट्रांना आपले गुलाम बनवू पाहत आहेत.

'रिलायन्स', 'सुझलॉन' ह्यांच्यासारख्या राष्ट्रीय व बहुराष्ट्रीय कंपन्यांचा डोळा आता समुद्रकिनारे, डोंगररांगा, सुपीक प्रदेश ह्यांच्याकडे लागला आहे. कोणाला वीजनिर्मिती करावयाची आहे, तर कोणाला नॅनो कार बनवायची आहे. वीजनिर्मितीसाठी रायगड व रत्नागिरी ह्या जिल्ह्यांमधील समुद्रकिनाऱ्यालगतच्या शेतकऱ्यांच्या जमिनी हस्तगत करून प्रकल्प उभारले गेले आहेत, जात आहेत. भारनियमनाचा व वीजटंचाईचा परस्परसंबंध जोडून वीजनिर्मिती प्रकल्पांची आवश्यकता प्रतिपादन केली जात आहे. त्यासाठी रोजगारनिर्मिती, आर्थिक सुबत्ता, भरीव मोबदला; परिसराचा कायापालट अशा गोष्टींचे मृगजळ दाखविले गेले आहे. परंतु झालेले विस्थापन व प्रकल्पांसाठी वापरल्या जाणाऱ्या कोळसा-गॅस इंधनामुळे होणारा पर्यावरण ऱ्हास, जमिनींची नासाडी, मत्स्यदुष्काळ ह्या परिणामांविषयी कोणतेही उत्तर ह्या प्रकल्पकांकडे नाही. अणुवीजनिर्मितीचा आशिया खंडातील सर्वात मोठा प्रकल्प माडबन, जैतापूर (जि. रत्नागिरी) ह्याची आखणी व अंमलबजावणी केली जात आहे. ह्या सर्वांचा स्थानिक भूमिपुत्रांच्या जीवनावर होणारा दुष्परिणाम, मासेमारीसारख्या पिढीजात उदरनिर्वाहाच्या

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CONSEQUENCE OF FOLIAR RELEVANCE OF BGA EXTRACT ON AUGMENTATION OF TOMATO (*LYCOPERSICON ESCULENTUM* MILL.) CVS. PHULE RAJA(RTH2)

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ABSTRACT

The field trials were conducted to study the effect of BGA on the growth and yield of Tomato (*Lycopersicon esculentum* Mill.) cultivar Phule Raja (RTH2). In all eight treatments (T_1- *Nostoc calcicola* extract, T_2- *Lyngbya majuscula* extract, T_3- *Scytonema millei* extract, T_4- *Oscillatoria subbrevis* extract , T_5- Bioforce, T_6- Amruta (19:19:19), T_7- Recommended dose (NPK) and T_8- Control) were applied through foliage at pre-flowering, flowering and post-flowering stages. The results of field trials that application of *Nostoc calcicola* and *Scytonema millei* extracts recorded highest plant height, number of branches, number of leaves, leaf area, plant spread, number of flowers, 50% flowering, number of fruits and crop yield (693.99 q/ha) as compared to the commercial fertilizers. The control (unspread) recorded lowest plant growth and crop yield (289.26 q/ha). The use of BGA extracts proved as an efficient alternative to the conventional chemical fertilizers.

Figure : 00 References : 18 Tables : 02
KEY WORDS : BGA, Biofertilizer, Extract, Tomato.

Introduction

Tomato (*Lycopersicon esculentum* Mill.) belongs to family Solanaceae is one of the main fruit vegetable crop grown in Maharashtra and most of the states in India. It is a rich source of Vitamin A and vitamin C and plays a key role in processing industries. In India, it is cultivated under varied agro climatic conditions which extend from tropics to temperate region. It is grown on an area of 8.21 lakh hectares with an annual production of about 80.2 lakh tones[2]. There is an ample scope to enhance the productivity of Tomato by adopting various techniques.

Contemporary agriculture has managed to increase the productivity of horticultural crop with the minimum use of plant nutrients. However, the intensive application of chemical fertilizers deteriorated the soil productiveness and distributed the biological balance of biodiversity[8]. Hence the current effort is to explore the possibility of an alternative for chemical fertilizers.

There are many evidences[3,5,10,15,18] for the presence of growth hormones in many algal members, but their effect on the growth of crops has not been investigated. As the green revolution started in agriculture, the concept of the use of fertilizers for enhancing growth and yield of crop has changed. Instead of application of fertilizer to the soil, various kinds of fertilizers in the form of liquid are sprayed on crop plants. Such liquid fertilizers are found to be more beneficial than the soil application.

Therefore, an attempt was made to assess potentiality of some blue-green algal extract on economically significant crop plant like Tomato. The aim of the work was to determine the nature and

TABLE- 1: Concentration percentage used for treatment and time of sprayings.

Sr. No.	Treatment	Symbol	Conc. %	Remark	
				Spraying	Time of spraying (DAS)
1	*Nostoc calcicola* extract	T_1	15-20	1st spraying	Pre flowering
2	*Lyngbya majuscula* extract	T_2	20		
3	*Scytonema millei* extract	T_3	15-20	2nd spraying	At flowering
4	*Oscillatoria subbrevis* extract	T_4	20		
5	Bioforce	T_5	2 ml/lit	3rd spraying	Post flowering
6	Amruta (19:19:19)	T_6	0.5 g/lit		
7	Recommended dose (NPK) kg/ha	T_7	300:150:150		
8	Control	T_8	Distilled water		

extent of any effect on growth and yield of vegetable crops like Tomato, due to spraying of blue-green algal extract as a liquid biofertilizer in the form of foliar spray.

Materials and Methods

The present investigation on Tomato (*Lycopersicon esculentum* Mill.) *var.* Phule Raja (RTH2) was carried out during 2014-15.

Materials

The seeds of Tomato *var.* Phule Raja (RTH2) were obtained from All India Co-ordinated Vegetable Improvement Project on MPKV, Rahuri. BGA cultures were developed from the soil samples by the serial dilution technique.

After isolation and identification unialgal cultures were used as starter for mass cultivation.

Methods

Mass cultivation: Simple pit method[16]. The algal mass dried under shade for a week and then powdered the extract[4]. Algal concentration: 1%, 5%, 10%, 15% and 20% were made.

Plan of layout: Factorial Randomized Block Design (FRBD) with seven treatments, which were replicated thrice.

Plot size: Season : Rabi

Gross plot size : 4.2 x 3.0 m^2

Net plot size : 3.6 x 2.4 m^2

Spacing : 60 x 60 cm

Crop variety : Phule Raja (RTH2)

Total plants per plot : 24

Source of irrigation was Well and Mula left canal Irrigation. Concentration percentage of algal extract, Bioforce, Amruta (19:19:19) and recommended dose applied on Tomato (Table- 2).

Growth and yield parameters such as plant height, number of branches, number of leaves, plant spread (cm), days for flower initiation, days required for 50% flowering, diameter of fruit, number of fruits per plant, weight of fruit per plant and yield of crop (q/ha) were recorded by using standard methods. Then the yield per hectare was calculated.

Results and Discussion

The foliar applications of various compounds (Algal extract, Bioforce and Amruta) had significant influence on plant height, number of leaves and branches, plant spread and yield characters like days required for flower initiation and 50% of flowering, length and diameter of fruit, number of fruits, fruit weight and yield of crop (fruit). The foliar application of blue green algal extract and two commercial preparations, Bioforce (an organic liquid plant vitaliser) and Amruta (19:19:19) (100% water soluble chemical fertilizer) performed

TABLE-2: Effect of BGA extract, Bioforce, Amruta and RCD as foliar application on growth and yield of Tomato (*Lycopersicum esculantum* Mill.) cv. Phule Raja.

TABLE-2: **Effect of BGA extract, Bioforce, Amruta and RCD as foliar application on growth and yield of Tomato (*Lycopersicum esculantum* Mill.) cv. Phule Raja.**

Treatments	Symbol	Plant height (cm.)	Nos. of Branches	Nos. of leaves	Plant spread (cm.)	Days for flower initiation	Days required for 50% flowering	Diameter of fruits (cm)	Nos. of fruits per plant	Weight of fruit per plant (g)	Yield of crops q/ha
Nostoc extract	T_1	159.33	9.67	115.55	79.350	58.00	73.00	55.36	52.00	70.067	693.99
Lyngbya extract	T_2	132.00	9.00	103.22	77.833	61.00	78.00	5.39	44.00	74.470	625.12
Scytonema extract	T_3	134.00	9.33	109.66	77.862	57.00	72.33	5.37	48.00	75.753	692.59
Oscillatoria extract	T_4	124.13	7.67	100.44	77.810	62.00	79.67	5.41	38.44	76.840	650.43
Bioforce	T_5	121.00	7.33	98.66	77.748	61.00	79.00	5.43	35.91	79.503	543.79
Amruta (19:19:19)	T_6	120.00	7.00	91.66	77.379	63.00	82.00	5.48	32.31	80.00	492.34
Recommended dose	T_7	119.00	6.67	93.11	75.564	64.00	85.67	5.50	29.00	84.620	467.42
Control	T_8	88.00	4.67	84.88	72.340	65.00	88.00	5.10	22.30	68.100	289.26
Mean		124.68	7.660	99.647	77.022	61.375	79.708	5.380	38.495	67.169	556.74
SE		0.289	0.083	0.175	0.339	1.086	0.556	0.090	0.618	0.190	166.67
CD 5%		0.861	1.138	0.520	1.008	3.220	1.653	0.267	1.837	0.565	494.98
CD 1%		1.181	1.561	0.713	1.382	4.427	2.267	0.367	2.520	0.776	678.83

better than control in improving the growth and yield of Tomato. Between the two commercial preparations tried, Bioforce performed better than Amruta, but blue green algal extracts were excellent in improving the growth yield attributes and yield of Tomato. Application of blue green algal extract like *Nostoc calcicola* extract recorded the tallest plant height (159.33 cm), highest number of leaves (115.55), number of branches (9.67), plant spread (79.350 cm), number of fruits per plant (52) and fruit yield (693.99 q/ha). However, maximum days required for flower initiation (64), 50% flowering (85.87), diameter of fruit (5.50 cm) and weight of fruit (84.620 gm) recorded in recommended dose. On the contrary, control (T_8) registered the shortest plant height (88 cm), lowest number of leaves (84.88), number of branches (4.67), plant spread (72.340), fruit diameter (5.10 cm), number of fruits per plant (22.30), fruit weight (68.100 g) and yield of crop (289.26 q/ha).

The blue green algal extract proved its superiority over the commercially available formulation in influencing the growth and yield of Tomato. It is more vivid that algal extract application in crops promotes the proliferation of root and root hair formation[1,6,7,11,13,14]. Further the low molecular weight blue green algal extract reported to be directly absorbed by plant when it is applied on foliage[9,12,17]. It has been speculated that the treatment comparison of blue green algal extract application with Bioforce and Amruta had given significantly better results. This might be due to the stimulatory action of blue green algal extract that contain growth hormones which increased uptake from soil[3,5,10,18]. Effective utilization of foliar applied nutrients promotes photosynthesis and respiration contributed by the protein-quinine groups respectively of accumulated blue green algal extracts.

Conclusion

The present study clearly concluded that, by using the low cost technology *i.e.* use of blue green algal liquid biofertilizer has exhibited its assorted influence on growth and yield with great boost over control as well as other commercial liquid fertilizer treatments. It was also observed that different blue green algal extract proved to be superior in increaseing height, leaves, branches, plant spread, length and diameter of fruit, number of fruits, fruit weight, yield of crops *etc.* So the inorganic fertilizers are known to be away from this aspect and long term, algal organic fertilizers are more useful.

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CERTIFICATE

This is to certify that Mr. / Ms. / Mrs. / Dr. / Prof. Sangita Kulkarni of Radhabai Kale Mahila Mahavidyalaya, Ahmednagar

participated/presented research paper/ as a Resource Person /as a Chair Person / Research Student in the

International Conference on "Natural Resources Management and Sustainable Agriculture" *on the*

January, 20th & 21st 2017. He/She has presented the paper, entitled - 'Populerization of Oyster mushroom in Jawhar Region (Dist - Thane) : A case Study'

Prof. A. V. Thokal	Prof. D. S. Ghungarde	Dr. R. E. Najan	Dr. R. K. Aher
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POPULARIZATION OF OYSTER MUSHROOM CULTIVATION IN JAWHA REGION (DIST. THANE) A CASE STUDY

Sangita Kulkarni
Dept. of Botany,
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Ahmednagar, Dist. Ahmednagar (MS

ABSTRACT

The Oyster mushroom cultivation technology is popularized in rural area Maharashtra in order to provide self employment opportunities to rural families and help in improving their quality of life. The activity was undertaken as tribal develop programme in Jawhar Taluka, Dist. Thane (MS). The training was provided to the t women who actively participated in Oyster mushroom cultivation programme. initiatives are beneficial for the development of the society.

Keywords: *Mushroom cultivation.*

Introduction:

There has been tremendous increase in Agricultural technology in past 50 years. At the same time the production of agricultural residue has increased in the field. It is either burnt or used for feeding the animals or else it is wasted in course of time without utilization.

The mushrooms esp. Edible mushrooms like *Pleurotus* species (Oyster mushroom) are important group of fungi which are able to agricultural waste and convert it into usa with enzymatic action.

Mushrooms are known for their since ancient times. They are rich so proteins, vitamins and minerals and ha medicinal properties. Thus they are co good health food and important for problems of malnutrition in many par

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SYNTHESIS AND BIOLOGICAL SCREENING OF SOME NEW THIOPHENE AND PYRAZOLE CONTAINING STYRYLCHROMONES AND PYRAZOLES

Sadhana D. Mhaske[1], Sushama J. Takate[2], Rhushikesh N. Dhawale[2], Hemantkumar N. Akolkar[1], Pratibha V. Randhavane[1], Bhausaheb K. Karale[1]*

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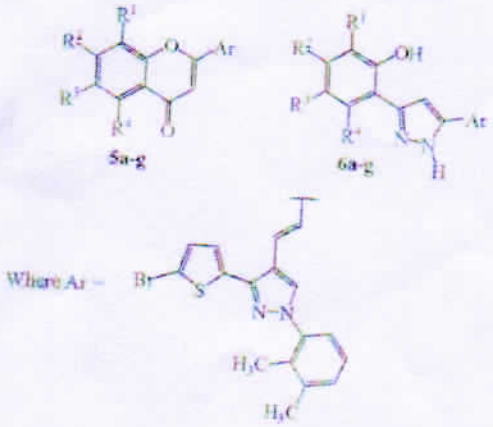

KEYWORDS β-Diketones, Styrylchromones, Pyrazoles, Antibacterial activity, Antifungal activity.

INTRODUCTION

The need of potential therapeutic agents is the basis for current research in synthetic organic chemistry. Nature contains widespread molecules with rings containing heteroatoms. There is absolutely no doubt that natural products have provided key leads for drug discovery.[1] The lead modification is an important step in current drug design and development.

Chromones and their derivatives are well known naturally occurring oxygen-containing heterocyclic compounds which perform important biological functions in nature. It is known that certain natural and synthetic derivatives possess important biological activities[2] including anti-tumor, anti-inflammatory, antioxidant, anti-hepatotoxic, anti-spasmolytic, estrogenic, and antibacterial activities.[3-5]

Styrylchromones are a small group of chromones with two natural 2-styrylchromones, hormothamnione and 6-desmethoxyhormothamnione which are known for their anticancer properties. Many synthetic 2-styrylchromones have exhibited bioactivities such as antiallergic,[6]

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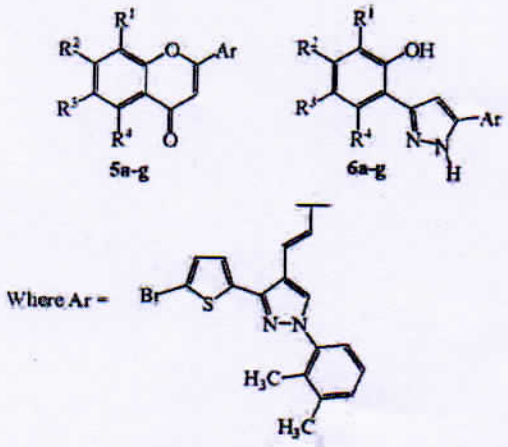

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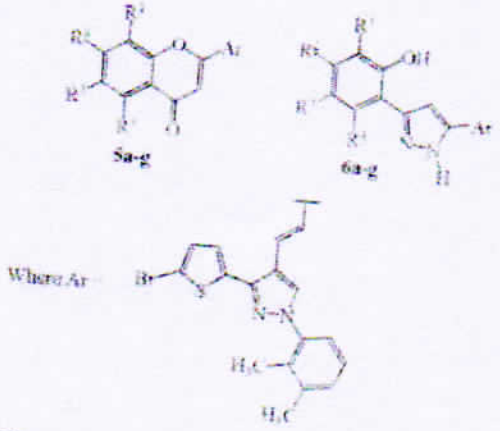

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Synthesis and characterization of novel fluorinated thiazolyl 1,3,4-thiadiazoles, 1,2,4-triazoles and 1,3-thiazoles by conventional and non-conventional methods

H N Akolkar[a], B K Karale[a], P V Randhavane[a] & N R Dalavi[b]*

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A series of novel fluorinated thiazolyl thiosemicarbazides, 1,3,4-thiadiazoles and 1,2,4-triazoles have been synthesized by using conventional and non-conventional methods. 1,3-Thiazoles have been synthesized from thiosemicarbazide by using conventional method. The structures of synthesized compounds have been confirmed with the help of spectral techniques.

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Thiosemicarbazide and its derivatives are associated with various pharmacological activities such as antitumor[11], anticancer[12], metallo-β-lactamase inhibitors[13], cathepsin L inhibitors[14] and antioxidant[15]. 1,3,4-Thiadiazole containing compounds are reported to have antimicrobial[16], antitumor[17], leishmanicidal[18], antiparasitic[19] and fungicidal[20] activities. 1,2,4-Triazole scaffold containing compounds exhibits various pharmacological activities like herbicidal[21], antitumor[22], antibacterial[23] and fungicidal[24]. Organic compounds associated with triazole nucleus can also act as corticotropin-releasing factor-1 receptor antagonists[25] and cyclooxygenase-2 inhibitors[26].

In comparison with conventional method, microwave and ultrasonication decreases the reaction time, increases selectivity and improves yield of the process[27,28].

Activities associated with fluorine, 1,3-thiazole, 1,3,4-thiadiazole and 1,2,4-triazole moieties and advantages of non-conventional methods prompted us to synthesize novel fluorinated thiazolyl 1,3,4-thiadiazoles, 1,2,4-triazoles and 1,3-thiazoles by conventional and non-conventional methods.

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Note

Synthesis and characterization of thiazole anchored fluorinated 2-heterylchromones and pyrazoles

H N Akolkar, P V Randhavane & B K Karale*

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Esterification of 2-(4-fluorophenyl)-4-methylthiazole-5-carboxylic acid **4** with 2-hydroxyacetophenones **5** yields compounds **6** which have been converted to β-diketones **7** by Baker-Venkataraman transformation. A series of 2-substituted chromones **8** have been obtained by acid catalysed intramolecular cyclization of β-diketones. Substituted pyrazoles **9** have been obtained from β-diketones **7**. Formation of all the synthesized compounds have been confirmed by the spectroscopic techniques.

Keywords: Hydroxyacetophenone, β-diketone, Baker-Venkataraman transformation, heterylchromones, pyrazoles

Compounds containing chromone moiety have attracted considerable attention of the researchers due to their important physiological and biological activities including antimalarial[1], μ-calpain inhibitors[2], antitubercular[3], antimicrobial[3], MAO-B inhibitors[4], anticancer[5], aldose reductase inhibitors[6], adenosine receptor antagonist[7] activity, *etc*. It is well known that sometimes introduction of fluorine atom into the molecule enhances its pharmacological activities. Fluorine containing compounds exhibits anticancer[8], herbicidal[9,10], antiviral[11], antifungal[12], *etc*. activities.

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Note

Synthesis and characterization of thiazole anchored fluorinated 2-heterylchromones and pyrazoles

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Esterification of 2-(4-fluorophenyl)-4-methylthiazole-5-carboxylic acid **4** with 2-hydroxyacetophenones **5** yields compounds **6** which have been converted to β-diketones **7** by Baker-Venkataraman transformation. A series of 2-substituted chromones **8** have been obtained by acid catalysed intramolecular cyclization of β-diketones. Substituted pyrazoles **9** have been obtained from β-diketones **7**. Formation of all the synthesized compounds have been confirmed by the spectroscopic techniques.

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Synthesis and Physico-Chemical Properties of Transition Metal Complexes with 2,4-Dichloro-6-{(hydroxyimino) [1-(4-methylphenyl)-1*H*-Pyrazol-4-yl] methyl} Phenol

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Abstract

Four new complexes were synthesized by the reaction of 2,4-dichloro-6-{(hydroxyimino) [1-(4-methylphenyl)-1*H*-pyrazol-4-yl] methyl} phenol ligand with transition metal ions Manganese (Mn^{2+}, Complex-I), Iron (Fe^{2+}, Complex-II), Cobalt (Co^{2+}, Complex-III) and Nickel (Ni^{2}, Complex-IV). The metal complexes have been characterized with the help of elemental analysis, IR spectroscopy, UV-Visible, thermal analysis and molar conductance measurements. The elemental analysis data exhibited the formation of complex with 2:1 (L:M) ratio. The Schiff bases are bidentate coordinating through the imine nitrogen and phenolic oxygen of salicyloyl pyrazoleoximes. Based on analytical and spectral data, four-coordinate geometry was assigned for all complexes. The electronic absorption spectra suggest the square planer geometry for the complexes. The molar conductivity data showed the non-electrolytic nature of the complexes.

Keywords: Complexes; Elemental analysis; Thermograms; Conductance; Electrolytes

Introduction

Metals have an esteemed place in medicinal chemistry. Transition metal represents the d block elements which includes group 3 to 12 on the periodic table. Their d shells are in incompletely filled. This property of transition metal resulted in the formation of coordination complexes. The complexes are having advances in inorganic chemistry and offer better opportunities to use metal complexes as therapeutic agents [1].

Metal complexes play an essential role in agriculture, pharmaceutical and industrial chemistry. Tridentate Schiff bases and their transition metal complexes exhibits good antibacterial activity against *E. coli*, *S. aureous*, *B. substilis* and *B. pumpilis*

Citation: Dhokale NT, Karale BK, Nagawade AV. Synthesis and Physico-Chemical Properties of Transition Metal Complexes with 2,4-Dichloro-6-{(hydroxyimino) [1-(4-methylphenyl)-1H-Pyrazol-4-yl] methyl} Phenol. Dhokale NT, Karale BK and Nagawade AV. Int J Chem Sci. 2017;15(2):138.

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ABSTRACT

Knoevenagel condensation was carried out using heterocyclic aldehydes and pyrazolone derivatives. The structure elucidation of condensation products 1, 2, 3 and 4 was done using spectral methods like IR, ^{1}H NMR and mass spectrometry. These novel compounds were screened for antimicrobial activity.

Keywords: Pyrazolone, Knoevenagel condensation, Antimicrobial activity.

INTRODUCTION

Multi drug resistant micro-organisms and increased systemic as well as infectious diseases are the two major challenges for scientific world. Development of newer synthetic entities can offer a major solution for these problems.

Pyrazolone containing compounds are associated with antimicrobial[1], antiviral[2], antifungal[3], antioxidant[4], cytotoxic[5], analgesic[6], anti-inflammatory[7]activities. Thiophene derivatives have found very important place in the field of drug discovery because of their potential biological activities[8].

Thiazoles have found applications in drug development for treatment of HIV infections[9], hypertension[10] and as inhibitors of bacterial gyrase B[11]. Moreover pyrazole containing compounds are reported to have good biological activities like antimicrobial[12], antifungal[13], antiviral[14],analgessic[15],anti parastic[16] and antineoplastic[17].

Pyridine nucleus is important nitrogen heterocycle which exhibits antimicrobial[18], anticancer[19] and antioxidant[20] activities. Imidazole derivatives have been shown to exhibit antibacterial [21], antifungal and antioxidant[22] activity.

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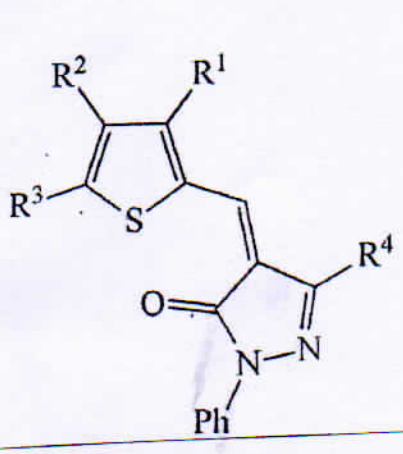

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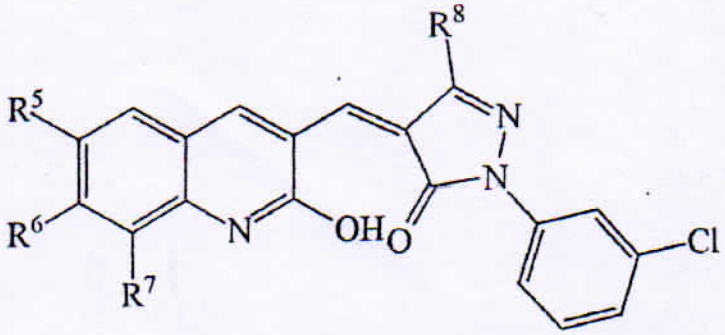

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KEYWORDS Thiophene, Quinoline, Pyrazolone, Knoevenagel condensation

INTRODUCTION

In recent years, green synthetic methods have received considerable attention in the area of organic synthesis. Ultrasonic methods have been considered superior over conventional methods. Many chemical reactions are carried out with mild conditions, short reaction time and high yield under ultrasound irradiation[1]. Sonication can be used for the synthesis of nanoparticles as well as for waste water purification and extraction of plant oil.

Microwave chemistry is the science of applying microwave radiations to chemical reactions[2]. It is time saving, cost effective and environment friendly method. This method is also effectively applicable for phase transfer catalysis[3].

Mechanochemistry is based on grinding, it is solvent free best technique for chemical reactions having green protocol. Avoiding organic solvents during the reactions in synthesis leads to a clean, efficient and green technology

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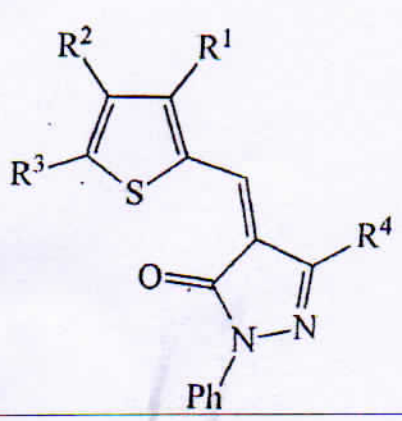

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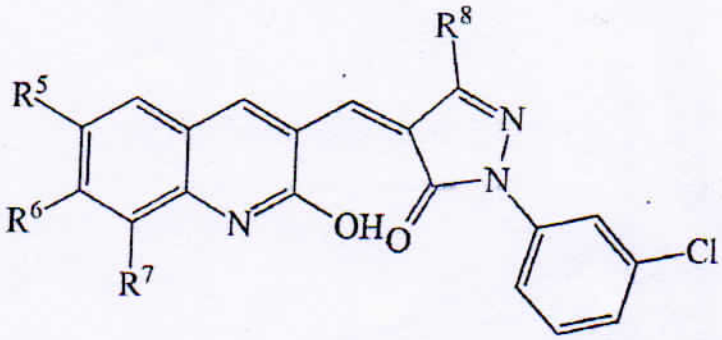

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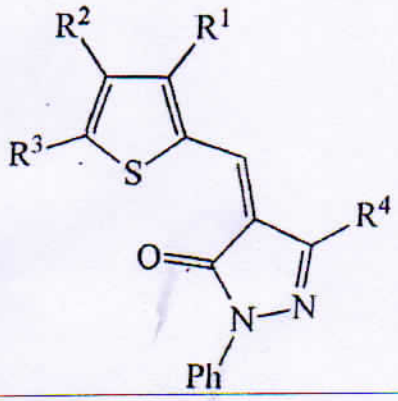

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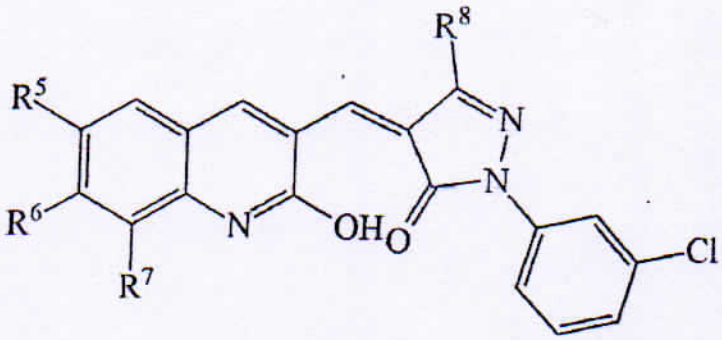

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In recent years, green synthetic methods have received considerable attention in the area of organic synthesis. Ultrasonic methods have been considered superior over conventional methods. Many chemical reactions are carried out with mild conditions, short reaction time and high yield under ultrasound irradiation[1]. Sonication can be used for the synthesis of nanoparticles as well as for waste water purification and extraction of plant oil.

Microwave chemistry is the science of applying microwave radiations to chemical reactions[2]. It is time saving, cost effective and environment friendly method. This method is also effectively applicable for phase transfer catalysis[3].

Mechanochemistry is based on grinding, it is solvent free best technique for chemical reactions having green protocol. Avoiding organic solvents during the reactions in synthesis leads to a clean, efficient and green technology

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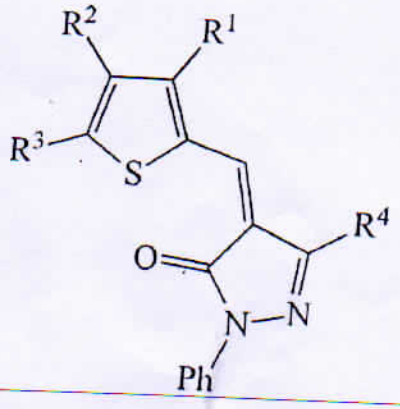
KNOEVENAGEL CONDENSATION OF HETEROAROMATIC ALDEHYDES WITH 1-PHENYL-1*H*-PYRAZOL-5(4*H*)-ONES

Rupali S. Endait, Bhausaheb K. Karale, Hemantkumar N. Akolkar and Pratibha V. Randhavane*
P.G. Department of Chemistry, Radhabai Kale Mahila Mahavidyalaya, Ahmednagar, 414001, India

ABSTRACT Thiophene-2-carbaldehydes were condensed with 1-phenyl-1*H*-pyrazol-5(4*H*)-ones by conventional, microwave, ultrasound and grinding method. 2-Chloroquinoline-3-carbaldehydes were subjected to Knoevenagel condensation with 1-(*m*-chlorophenyl)pyrazolone by conventional method. The structures of all the synthesized compounds were confirmed with the help of spectral and elemental analytical data.



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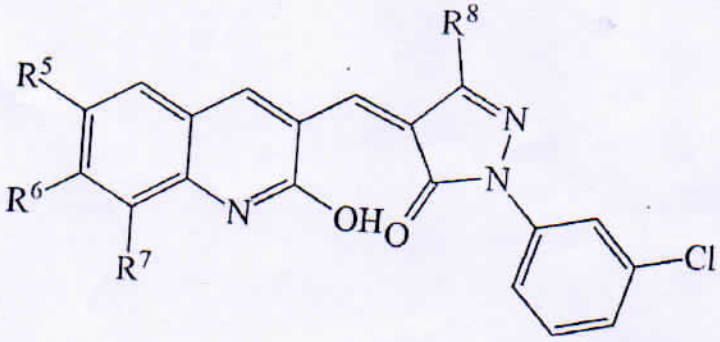

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CONVENTIONAL AND NON-CONVENTIONAL SYNTHESIS OF SOME NOVEL BENZOFURAN INCORPORATED THIADIAZOLES AND TRIAZOLES

S.G. Kundlikar, P.V. Randhavane, H.N. Akolkar and B.K. Karale*
P.G. Department of Chemistry, Radhabai Kale Mahila Mahavidyalaya, Ahmednagar, 414 001, India.

ABSTRACT 7-Bromo-5-chlorobenzofuran-2-carbohydrazide **4** on reaction with substituted arylisothiocyanates gave compound **5** which on reaction with acidic and basic medium gave corresponding compound thiadiazoles **6** and triazoles **7** respectively. The structures of all the synthesized compounds were characterized with the help of spectral techniques.

KEYWORDS Benzofuran, Thiadiazoles, Triazoles

INTRODUCTION

Benzo[*b*]furan consists of an aromatic ring fused with a five-membered ring with oxygen as a heteroatom in position 1 as structure components. Benzofuran nucleus is endowed with useful biological activities such as anticonvulsant[1], allosteric modulators of Hsp90[2], inhibitors of human mitogen-activated protein kinase phosphatase-1[3], antimicrobial[4], antitrypanosomal[5], phytotoxic[6] and also have pharmaceutical utility[7,8].

Thiosemicarbazides are the key intermediates for synthesis of various important biologically active heterocycles such as thiazoles, triazoles, thiadiazoles and oxadiazoles. Thiosemicarbazides are known for their antifungal[9], antitumour[10], antibacterial[11], cytotoxic[12] and antioxidant[13] activities.

Thiadiazole derivatives are associated with broad spectrum of biological activities such as antileishmanial[14], antitumour[15], antimicrobial[16], anticancer[17] and GSK-3ß inhibitors[18]. Triazoles exhibit wide range of pharmaceutical activities like cytotoxic[19], cytochrome P450 14a-demethylase[20], antimicrobial[21], antiinflammatory[22] and Lp-PLA2 inhibitors[23].

Sonochemistry is the application of ultrasound to chemical reactions[24,25] and processes causing sonochemical effects in liquids is the phenomenon of acoustic cavitation which results in increase in reaction speed, increase in reaction output, more efficient energy usage and increase in the reactivity of reagents or catalysts. The microwave irradiation reduces the time for conversion of reaction product due to ability of microwaves to rapidly heat the reactions which prevents the decomposition of reagents and unstable intermediates which leads high yielding cleaner reactions[26,27] comparing to conventional methods.

EXPERIMENTAL

Melting points were recorded in open capillaries in liquid paraffin bath and are uncorrected. Ultrasonic reaction was carried out in *Bio Techno Lab* instrument and microwave irradiation was carried out in *Raga's Scientific Microwave System*. Mass spectra were recorded on Waters acquity TQD mass spectrometer. ^{1}H NMR spectra were recorded on Bruker Avance II 400 MHz NMR spectrometer in DMSO-d_6 as a solvent and TMS as an internal standard. Peak values are shown in d (ppm). IR

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SYNTHESIS AND ANTIMICROBIAL EVALUATION OF SOME NEW THIOPHENE ANCHORED CHROMONES, AURONES AND PYRAZOLES

H. N. Akolkar[a]*, R. K. Jadhav[b], B. K. Karale[a] and P. V. Randhavane[a]
[a]P. G. Department of chemistry, Radhabai Kale Mahila Mahavidyalaya, Ahmednagar, Maharashtra
[b]Department of chemistry, S. S. G. M. College, Kopargaon, Ahmednagar, Maharashtra

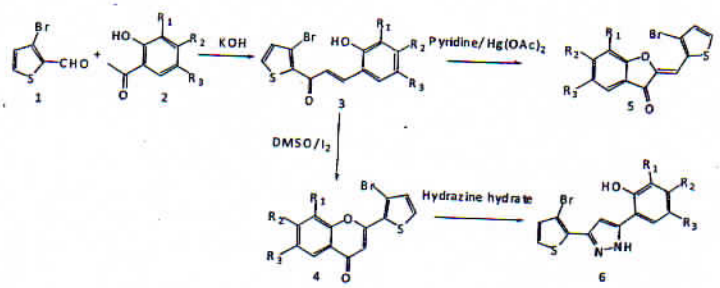
ABSTRACT Novel series of substituted 2-(3-bromothiophen-2-yl)-4*H*-chromen-4-ones **4** and (*Z*)-2-((3-bromothiophen-2-yl)methylene)benzofuran-3(2*H*)-ones **5** were synthesized by utilizing (*E*)-3-(3-bromothiophen-2-yl)-1-(2-hydroxyphenyl)prop-2-en-1-one **3**. Various substituted 2-(3-(3-bromothiophen-2-yl)-1*H*-pyrazol-5-yl)phenols **6** were synthesized from 2-(3-bromothiophen-2-yl)-4*H*-chromen-4-one **4**. Newly Synthesized compounds were screened for their antibacterial and antifungal activities.

KEYWORDS Thiophene, Chromones and Aurones

INTRODUCTION

Thiophene is five membered sulphur containing heterocyclic compound. Thiophene derivatives possess important biological activities like antitubercular[1], antiproliferative[2], antimalarial[3], adenosine receptor antagonists[4], hepatitis C virus polymerase inhibitors[5], antibacterial[6]. A large number of chalcones have been studied mainly due to their various pharmacological properties such as antimicrobial[7], antimalarial[8], antiplasmodial[9], acetylcholinesterase inhibitors[10] etc.

Compounds containing chromone scaffold possess numerous biological activities like carbonic anhydrase inhibition[11], cytotoxic[11], HIV-1 protease inhibitor[12], antioxidant[13], calpain inhibitory properties[13], MAO-B inhibitors[14], interleukin-5 inhibitors[15]. Aurones are reported to possess anticancer[16], anti-inflammatory[17], antimicrobial[17], histone deacetylase inhibitors[18] activities. Aurones also serve as probes of β-amyloid plaques in Alzheimer's disease[19].



SCHEME-1

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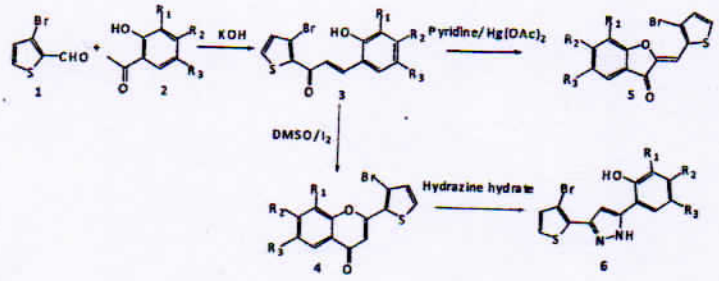

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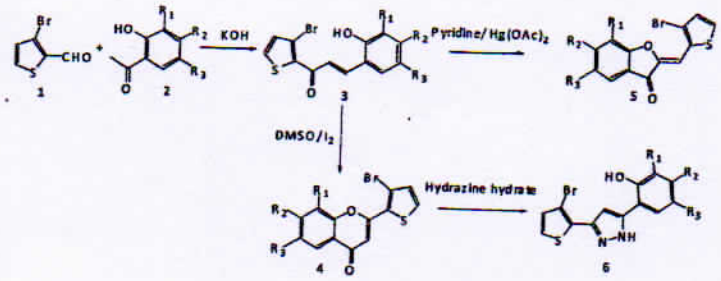

SCHEME-1

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Vol. 55B, October 2016, pp. 1243-1247

Synthesis of novel fluorine containing imidazolyl aurones and benzofurans

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Imidazolyl aldehyde **1** on reaction with substituted 2-hydroxyacetophenone **2** gives chalcone **3**, which on treatment with mercuric acetate in dry pyridine gives compound **4** and when treated with dry acetone in K_2CO_3 with 4-bromophenacylbromide gives compound **5**. The structures of all the synthesized compounds have been confirmed by spectroscopic techniques.

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Unique properties associated with fluorine are highest electronegativity, smallest size, high thermal stability and lipophilicity due to which the substitution of hydrogen by fluorine has become a common strategy in development of drugs[1,2]. Organofluorine compounds can increase the herbicidal[3], fungicidal[4] and insecticidal[5] activities of certain compounds.

Imidazole is a planar 5-membered ring containing 3C-2N at 1,3-position. It exists in two equivalent tautomeric forms. Imidazole scaffold is one of the most valuable pharmacophores for medicinal research[6]. The essential amino acid histidine, biotin and alkaloids are well known natural products that have imidazole moiety[7]. There are many clinical drugs being used in different therapeutic areas based on the imidazole structure such as antihypertensive (losartan), anticancer (decarbazine), antihistaminic (cimetidine) and antiparasitic (metronidazole). Due to its importance it has become an attractive target for synthetic and medicinal chemists. There are many synthetic methodologies that have been developed to assemble imidazole ring with diverse functional groups. Various biological activities associated with imidazole are antitubulin[8], mGAT3 selective GABA uptake inhibitors[9], antitubercular[10], antitumour[11], hemeoxygenase-1 and hemeoxygenase-2 (Ref 12) inhibitors.

Chalcones are a family of aromatic ketones bridged by an enone[13] linkage and these are Michael acceptors and constitute important group of natural products belonging to the flavonoid family. Derivatives of chalcones have been reported to possess various biological activities including antiinflammatory[14], anticancer[15], α-glucosidase inhibitor[16] *in vitro*, antimalarial[17], Nrf2 activators[18], antimicrobial[19], antifungal[20], antihyperglycemic[21], antibacterial[22] and antioxidant[23].

Aurones are structural isomers of flavones that contain an exocyclic carbon-carbon double bond bridging the benzofuranone and phenyl rings[24,25]. Aurones are the natural yellow pigments of plants and have a limited occurrence. The important biological activities of aurones have been highlighted with recent studies that revealed their anticancer[26], anti-inflammatory[27], antimicrobial[27], antiparasitic[28], antiviral[29], inhibitory activities against acetylcholinesterase[30] and MAO-B[31].

Benzo[*b*]furan derivatives are an important class of organic compounds, which are known to be present in many natural products[32] and possess physiological activity. They have found applications in agro-chemicals[33,34], pharmaceuticals[35] and cosmetics[36]. Benzo[*b*]furans are building blocks of optical brighteners[37]. Baker's yeast contains benzofuran derivatives showing antioxidant properties[38].

Experimental Section

The synthesis of 1-((4-(2,2,2-trifluoroethoxy)-3-methylpyridin-2-yl)methyl)-2-butyl-4-chloro-1*H*-imidazole-5-carbaldehyde **1** was performed by using the literature method[39]. Melting points were recorded in open capillaries in liquid paraffin bath and are uncorrected. Mass spectra were recorded on Waters Acquity TQD mass spectrometer. ^{1}H NMR spectra were recorded on Bruker Avance II 400 MHz NMR spectrometer in DMSO-d_6 as a solvent and TMS as an internal standard. Peak values are

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Keywords: Imidazoles, aurones, chromones

Unique properties associated with fluorine are highest electronegativity, smallest size, high thermal stability and lipophilicity due to which the substitution of hydrogen by fluorine has become a common strategy in development of drugs[1,2]. Organofluorine compounds can increase the herbicidal[3], fungicidal[4] and insecticidal[5] activities of certain compounds.

Imidazole is a planar 5-membered ring containing 3C-2N at 1,3-position. It exists in two equivalent tautomeric forms. Imidazole scaffold is one of the most valuable pharmacophores for medicinal research[6]. The essential amino acid histidine, biotin and alkaloids are well known natural products that have imidazole moiety[7]. There are many clinical drugs being used in different therapeutic areas based on the imidazole structure such as antihypertensive (losartan), anticancer (decarbazine), antihistaminic (cimetidine) and antiparasitic (metronidazole). Due to its importance it has become an attractive target for synthetic and medicinal chemists. There are many synthetic methodologies that have been developed to assemble imidazole ring with diverse functional groups. Various biological activities associated with imidazole are antitubulin[8], mGAT3 selective GABA uptake inhibitors[9], antitubercular[10], antitumour[11], hemeoxygenase-1 and hemeoxygenase-2 (Ref 12) inhibitors.

Chalcones are a family of aromatic ketones bridged by an enone[13] linkage and these are Michael acceptors and constitute important group of natural products belonging to the flavonoid family. Derivatives of chalcones have been reported to possess various biological activities including antiinflammatory[14], anticancer[15], α-glucosidase inhibitor[16] *in vitro*, antimalarial[17], Nrf2 activators[18], antimicrobial[19], antifungal[20], antihyperglycemic[21], antibacterial[22] and antioxidant[23].

Aurones are structural isomers of flavones that contain an exocyclic carbon-carbon double bond bridging the benzofuranone and phenyl rings[24,25]. Aurones are the natural yellow pigments of plants and have a limited occurrence. The important biological activities of aurones have been highlighted with recent studies that revealed their anticancer[26], anti-inflammatory[27], antimicrobial[27], antiparasitic[28], antiviral[29], inhibitory activities against acetylcholinesterase[30] and MAO-B[31].

Benzo[*b*]furan derivatives are an important class of organic compounds, which are known to be present in many natural products[32] and possess physiological activity. They have found applications in agro-chemicals[33,34], pharmaceuticals[35] and cosmetics[36]. Benzo[*b*]furans are building blocks of optical brighteners[37]. Baker's yeast contains benzofuran derivatives showing antioxidant properties[38].

Experimental Section

The synthesis of 1-((4-(2,2,2-trifluoroethoxy)-3-methylpyridin-2-yl)methyl)-2-butyl-4-chloro-1*H*-imidazole-5-carbaldehyde **1** was performed by using the literature method[39]. Melting points were recorded in open capillaries in liquid paraffin bath and are uncorrected. Mass spectra were recorded on Waters Acquity TQD mass spectrometer. ^{1}H NMR spectra were recorded on Bruker Avance II 400 MHz NMR spectrometer in DMSO-d_6 as a solvent and TMS as an internal standard. Peak values are

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Synthesis and Characterization of Mn(II), Fe(II), Co(II) and Ni(II) Complexes of Salicyloylpyrazole Oxime

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In the present investigation, a simple and efficient synthesis of Mn(II), Fe(II), Co(II) and Ni(II) complexes containing salicyloylpyrazole oxime moiety is reported. The synthesized complexes were characterized by elemental analysis and spectral techniques such as IR, NMR and UV-visible. The formation of complexes were also confirmed by thermal studies and molar conductance. The analytical data supports 1:2 stoichiometry for metal:ligand. The molar conductivity data indicated the non-electrolytic nature of complexes. The electronic absorption spectra suggested the square planar geometry for metal complexes.

Keywords: Synthesis, Transition metal(II) complexes, Salicyloylpyrazole Oxime.

INTRODUCTION

A Schiffs base with 2-hydroxyoxime behaves as flexidentate ligand and commonly coordinate through O atom of phenolic group and the N atom of oxime group. The lone pair of electron present on nitrogen atom of oxime group is having considerable interest of chemical importance. It provides an excellent chelating ability when used with one or more donor atoms near to oxime group. This chelating ability of C=N group makes it an interesting ligand in coordination chemistry.

Oximes are versatile ligands and can easily forms complexes with transition metal ions [1]. Several transition metal complexes with 2-hydroxyoximes have been reported previously. The coordination chemistry of transition metal ion with 2-hydroxyoximes have shown considerable interest due to many applications in various fields [2,3]. Oxime complexes have been used as cerebral and myocardial perfusion image agent [4,5]. The metal complexes of oximes have structural features due to formation of intramolecular hydrogen bonds and a packing configuration which gives rise to important applications as biochemical model [6,7] and semiconducting materials [8,9]. Schiff base and their metal complexes show wide range of applications in agriculture, pharmaceutical and industrial chemistry. Oxime containing Schiff base copper complex shows good catalytic activity in degrading various organic dyes [10]. The oxime containing Schiff base complexes also shows antimicrobial [11], anticancer [12] activity. The complexes derived from pyrazole and their derivatives are widely used as herbicides, fungicides [13] and anti-inflammatory [14] agents.

The wide biological applications of pyrazoleoximes and emergence of new fungal pathogens 1-(3,4-difluorophenyl-4-(2-hydroxybenzoyl)-1*H*-pyrazole) [15], prompted us to work on the synthesis of salicyloylpyrazole oxime and its transition metal complexes. The properties of all newly synthesized complexes investigated by physical and spectroscopic methods.

EXPERIMENTAL

All the chemicals used were commercially available, solvents were research grade and used after purification. Both water and ethyl alcohol were distilled before use. Melting points were recorded on open capillary method and uncorrected. Electrical conductivity data were recorded in 1×10^{-3} M solution in DMF on Elico digital conductivity meter model (CM-180). The elemental and FTIR spectra (4000-350 cm^{-1}) recorded at SAIF, Punjab University, Chandigarh. The UV-visible spectra were recorded on Shimadzu double beam spectrophotometer (UV-1800) in range 700-190 nm. The thermal analysis was recorded on Shimadzu thermometric analyzer (TGA-50). Standard volumetric methods were used to find the concentration of metal ions [16]. The ligand salicyloylpyrazoleoxime was prepared using the method reported in our previous investigation [17].

General procedure for synthesis of metal complexes: One equivalent of the corresponding metal sulphate ($MnSO_4$,

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Tautomerism in *o*-hydroxyanilino-1,4-naphthoquinone derivatives: Structure, NMR, HPLC and density functional theoretic investigations

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ABSTRACT

Structure and spectral characteristics of '*Ortho*' ((E)-4-hydroxy-2-(2′-(4′-R)-hydroxyphenyl)-imino)-naphthalen-1(2H)-one) and '*para*' (2-(2′-(4′-R)-hydroxyphenyl)-amino)-1,4-naphthoquinone) tautomers of *o*-hydroxyanilino-1,4-naphthoquinone derivatives (R=H, 1A; $-CH_3$, 2A; and −Cl, 3A) are investigated using the ^1H, ^{13}C, DEPT, gDQCOSY, gHSQCAD NMR, HPLC, cyclic voltammetry techniques combined with the density functional theory. The compound 2A crystallizes in monoclinic space group $P2_1/c$. wherein the polymer chain is facilitated via O−H···O and C−H···O intermolecular hydrogen bonding. Marginal variations in bond distances in quinonoid and aminophenol moieties render structural flexibility to these compounds those in solution exist as exist in '*ortho* – *para*' tautomers. ^1H and ^{13}C NMR spectra in DMSO-d_6 showed two sets of peaks in all compounds; whereas only the *para* tautomer of for 1A and 2A, the para tautomer is predominant in CD_3CN solution. Further the *ortho-para* interconversion is accompanied by a large up-field signals for C(3)−H(3) in their ^1H and ^{13}C NMR spectra. These inferences are corroborated by the density functional theoretic calculations.

1. Introduction

Enzymatic activities, spontaneous mutation as well as biological activities of organic, heterocyclic, biochemical compounds are due to proton transfer in fundamental functional groups like ketone, aldehyde, ester, amide, peptide and proteins. Tautomers are prime important class of isomers which exerts potent pharmacological activities outcomes from various molecular interactions. Classical discrimination between isomerism and tautomerism is the only relative low energy required for interconversion of tautomers. Tautomers are easily interconvertable isomers of single molecule by transfer of atom or group of atom usually the proton. Tautomeric equilibrium are strongly affected by polarity of the solvent and density. The accompanied energy difference up to 20 kcal mol^{-1} can be observed which can alter the concentration of either of the tautomers significantly [1,2]. Isomerisation of prototrophic tautomers refers to the migration of proton from atom to another such as C, N, O or may be S. The migration of such proton involving carbon atom being sufficiently slow so that the corresponding tautomers could be separated easily in solution. Contrary to this the proton transfer involving nitrogen to oxygen or vice-versa are rapid and the separation of tautomers in solution [3,4] become far from straightforward. Tautomeric equillibria are dependent on the dielectric constant of the medium and the ability of solvents to hydrogen bond with each tautomer. The polar solvent usually favors the more polar tautomer. The equilibrium composition further is influenced by temperature as well; with higher temperature increasing the proportion of the less stable enol form can be noticeable. The structural attributes and solvent polarity dictate the tautomeric equillibria.

Hydroxynaphthoquinones are pharmacologically important molecules they possess several biological activities which includes, anticancer [5] and antibiotic [6] etc. Hydroxynaphthoquinones exist in tautomeric equillibria in solutions contrary to only one stable tautomeric form in solid [7]. The prototropic tautomerism of 2-hydroxy-1,4-naphthoquinone derivatives predicted the 1,4-tautomer of naphthoquinone is observed to be of lower energy and biologically relevant. It has further been inferred that the hydroxyl group is crucial for its inhibitory action against quinol fumarate

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Synthesis, Characterization and Antibacterial Studies on Mn(II) and Fe(II) Complexes of N, O Donor Salicyloyl Pyrazole Oxime Schiff Bases

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ABSTRACT

Mn (II) and Fe(II) complexes with Schiff bases substituted salicyloyl pyrazole oximes were synthesized by the reaction of CFPHMP, FPHMP, DCFPHMP, CFPHMMP and BFPHMP (see introduction for definitions) with transition metal ion Manganese (Mn^{2+}) and Iron (Fe^{2+}). They were characterized by analytical and spectral methods. The elemental analysis data reveal that the Schiff base metal (II) complexes have 1:2 (M:L) stoichiometry. The molar conductivity data showed them to be non electrolytes. The Schiff bases are bidentate coordinating through the imine nitrogen and phenolic oxygen of salicyloyl pyrazole oximes. Based on analytical and spectral data, four-coordinate geometry is assigned for all complexes. The electronic absorption spectra suqqests the square planer geometry for the complexes. The ligand salicyloyl pyrazole oximes and their Mn (II) and Fe (II) complexes were screened against *bacillus subtilis, Staphylococus aureus, actinomycetes* and *pseudomonas*.

Keywords: Antibacterial, elemental analysis, transition metal complexes, square planer, electrolytes.

INTRODUCTION

Hydroxyoximes are special class of Schiff base ligands which contains hydroxyl group in addition to imine functionality. It is easy to make coordinate bond with bivalent metal through Oxygen atom of phenol by deprotonation and through Nitrogen atom of imine group. The oxime group also plays an important role to promote inter and intra molecular hydrogen bond, to stabilize metal-organic molecule framework and used in extractive metallurgy and separation of metal ions[1-4]. The chemistry of oxime metal complexes is interesting because of these species shows variety of reactivity modes. They have been widely studied in variety of biochemical[5,6] and analytical applications[7,8].

The oxime group attached to the pyrazole ring is very good donor group because of its potential to facilitate different coordination modes. Also it is

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Experimental Research

Biotechnology Section

Pharmacophore Mapping Approach for Drug Target Identification: A Chemical Synthesis and in Silico Study on Novel Thiadiazole Compounds

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ABSTRACT

Introduction: Compounds containing thiadiazole moiety are cognized to possess with variety of clinical and therapeutic activity. Finding a suitable drug target for newly synthesized compounds remain a major bottle neck in current high throughput medicinal chemistry era.

Aim: To effectively synthesize di substituted thiadiazole compounds and demonstrate drug target identification using an in silico pharmacophore probing approach. Moreover, we also aim to validate the suitability of identified drug target.

Materials and Methods: A cost-effective and environmental friendly chemical synthesis scheme for production of di substituted thiadiazole compounds was employed. Target identification was conducted by Pharmmapper software. Validation was accomplished by performing molecular docking and further Molecular Hydrophobic Potential (MHP) analysis.

Results: Pharmacophore probing based approach identified hepatocyte growth factor receptor (c-Met) as a suitable biological target for newly synthesized compounds. Binding free energy values indicate that compound 4b, 4e, 4g and 4h has tremendous potential to be further used as lead compound to design selective inhibitors of c-Met receptor. MHP data from current study supports the possibility that hydrophobic contacts might act as major factor stabilizing thiadiazole c-Met complex. Moreover, in silico observations of current study are in absolute accordance with previously described in vitro and crystallographic analysis.

Conclusion: We demonstrate that thiadiazole compounds synthesized in current investigation has high potential to act in modulation of hepatocyte growth factor receptor (c-Met) activity and thereby act as putative therapeutic agent in cancer therapy.

Keywords: AutoDock, Hepatocyte growth factor receptor, Ligand Scout, Molecular docking, Molecular hydrophobic potentials, Thiosemicarbazide

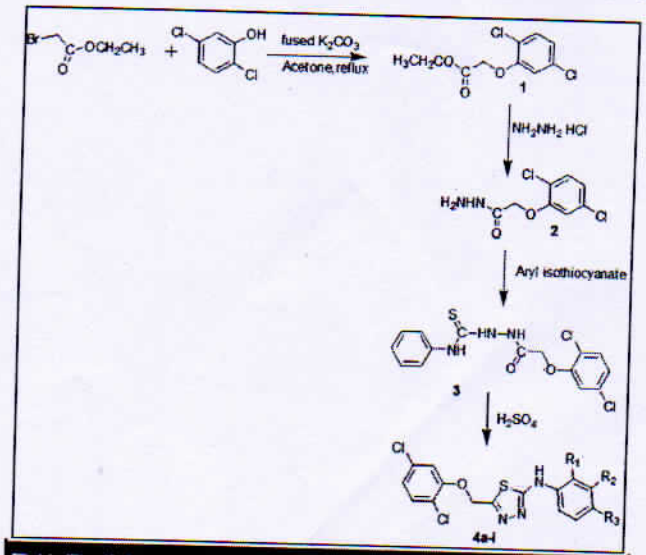
INTRODUCTION

The clinical applications of antibacterial chemotherapy began in 1935 with the discovery of prontosil. Over the next three decades, virtually all the major classes of antibiotics and synthetic antibacterial agents in current use were introduced. The wide spread introduction of these antimicrobials into clinical practice have made possible the treatment of life threatening diseases and enabled advances in surgical techniques by permitting the prophylaxis and treatment of surgery related infections.

However, steadily increasing drug resistance in the treatment of infectious disease posed a serious problem in antimicrobial therapy and necessitates continuing research on different classes of thiadiazole derivatives. Thiadiazole compounds are known to act as antimicrobials [1,2], antituberculosis [3], anti-inflammatory [4,5], anticonvulsant [6,7], antihypertensive [8,9], local anesthetic and anticancer [10,11]. The 1,3,4-thiadiazoles are known to exhibit various biological activities due to the presence of N=C-S moiety [12].

Moreover, numerous therapeutically important medicines like terconazole, itraconazole, fluconazole, cefazoline are known to contain one of these heterocyclic nucleus. In view of the above mentioned facts and in continuation of our work on the synthesis of the effective treatment of human diseases, the synthesis of some novel 2, 5-disubstituted-1,3,4-thiadiazole derivatives was carried out. The reaction sequence leading to the formation of desired heterocyclic compounds are outlined in [Table/Fig-1].

Generally, compounds subsequent to synthesis are subject to extensive proteomic approach to identify potential binding proteins. Such a technique involves comparison of the protein expression profiles for a given cell or tissue in the presence or absence of the given molecule. This method has not proved very successful in target discovery because it is laborious and time consuming [13,14]. Alternatively, we have implemented in silico target profiling method in identification of potential targets using online server PharmMapper [13].



[Table/Fig-1]: Schematic representation of methodology adopted in synthesis of novel thiadiazole derivatives in current study.

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Library Consortia: An Overview

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Abstract:

Library Consortia is the sharing of resources among the participant's is libraries. Library Consortia is now being overheard globally. It is more because of digital form of information consortia are all about sharing resources and improving access to information. This resource is shared among libraries that have Common mission goals and client and act on those Commonalties. This paper attempts to describe about meaning, Need, Advantages, disadvantages, features, objectives and Consortia in India, of the Consortia.

Keywords:

Consortia, INDEST, CSIR, FORSA, Library networks and Technology

Introduction:

Resource Sharing is also known as network resources or shared resources refer to Computer data information or hardware devices that can be easily accessed form a remote Computer through a local area network (LAN) or enterprise intranet. Successful shared resource access allows users to operate as if the shared resource were on their own computer. One of the most complex issues that library professionals have been facing is how to [illegible] with ever proliferating electronic resources [illegible] rapidly changing information technology [illegible] the early 1990 there have been [illegible] changes in the area of library [illegible] Resource sharing has been the [illegible] libraries for cooperation, [illegible] collaboration between groups of [illegible] different levels.

"Two or more libraries and /or other organizations engaged in a common pattern of information exchange through communications for some functional purpose. A network usually consists of a formal arrangement whereby materials, information's and services provided by a variety of types of libraries and or other organizations are made available to all potential users. Networking of computers means physically doing of something for linking more computing together for sharing selected information.

The academic libraries, being the never centers of higher education, teaching and learning, play an important role in support of all the activities of the concerned University. The increasing growth in the enrolment of students and researcher, lack of proper and adequate infrastructure further aggravates the overall problems, challenges, for the academic libraries. This situation arise the need of consortia of digital libraries. University Grants Commission (UGC) All India Council for Technical Education (AICTE) and other government bodies of education are helping academic libraries to make automation and build their own Consortia of libraries in their area.

Defintation:

1. "A Consortium could be described as a group of organizations who come together to fulfill a combined Objective that usefully requires co-operation and the sharing of resources. And need to have a clear mutual goal in order to ensure their success. The aim should be to deliver "More than the sum of the individual parts". A library consortium formation can be local, state, national and inter the [illegible] level.

2. According to Biswas and Dasgupta [illegible] the term "Consortium" can be defined [illegible] cooperation of a number of [illegible] companies etc. for a common purpose. [illegible] of two or more information [illegible] which have formally agreed into

number of users as more like minded institutes evinced interest to join the consortium.

Now day's NKRC facilitates access to 5,000t.e. Journals of all major publishers, patents, standards action and bibliographic databases. Apart from licensed resources, NKRC is also a single point entity that provides its users with access to a multitude of open access resources. The consortium envisions emerging as a leader to serve the R&D sector, with much needed information to strengthen the research and development system in the country.

C. UGC Infonet Digital Library Consortium:

The UGC Infonet Digital Library Consortium is major initiative of University Grants Commission (UGC) to bring qualitative change in academic libraries in India. It was formally launched in December 2003 by Honorable Dr. A.P.J. Abdul Kalam, the then presented of India, soon after providing the Internet Connectivity, to the universities in the year 2003 under the UGC Infonet Programme. It is a national initiative for providing access to scholarly electronic resources including full text and bibliographic databases in all subject disciplines to academic community in India. It facilitates access to high quality e-resources to academic in the Country to improve teaching, learning and research.

The consortium provides current as well as archived access to more than, 5000 Core and peer reviewed journals and nine bibliographic Databases in different disciplines from 23 publishers and aggregators. The access to all major e-resources was given 50 universities in first phase in the year 2004. It has now been extended to 157 universities in three different phases. In terms of number of users the UGC Infonet Digital Library Consortium is the largest Consortium in India with a vision and plan to research out to all universities and colleges affiliated to those universities over a period of time. The main objective of the UGC INFONET Digital Library Consortium is to provide access to [illegible] resources including full text [illegible] databases to academic institutions [illegible] of subscription.

D. FORSA [illegible] Sharing in Astronomy [illegible]

It was [illegible] due to proliferation of [illegible] professionals working in the Institutes [illegible] astronomy was one of the main thrust [illegible] research felt the need to come together and form a forum, which can act as a sprinboard for sharing and exchange of information. The sheer necessity brought all like minded astronomy libraries in the country together and a first meeting was held on July 29 1981 at Raman Research Insatiate, Bangalore and Informally laundered forum for resource sharing in astronomy and astrophysics FORSA with a vision and mission to share resources held in each library.

Since 1989, FORSA members meet every year in conjunction with annual meeting of the Astronomical Society of India. A note worthy feature of such meetings is that FORSA members interact with the astronomers in the joint session, in which development in library and information handling activities in the field of Astronomy/ astrophysics and presented and Comments from users. Are solicited to improve expand library service.

E. IIM's Library Consortia (The Indian Institute of Management):

IIM Library Consortia is a Digital Library network system based on internet technology to provided the IIM Community (Faculty, student and Staff) an online web enabled access to the information resources available in all the IIM's without any barriers of time and distance. It will be a simple efficient and cost effective system. The basic operating principle of this System is decentralized acquisition, decentralized [illegible] and centralized utilization.

Co[illegible]

[illegible] providing for physical [illegible] of materials and

integrating the collection0development process are all distant and crucial steps in moving toward the twenty first Century library. Library consortia are really helping the resources faculties and the students to retrieve the information and save their time. It benefits the libraries to procure more electronic resources in the library with limited library budget and this what the libraries require in the present scenario.

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Reengineering of Academic Libraries with Electronic Publishing

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Abstract

Rapid development in information and communication technologies culminated in electronic publishing. There are changes in all domains of libraries due to the advancements in the area of printing, publishing, information and communication technologies. The technologies have brought about a radical change in the tools and techniques of information storage and transmission. The shifting of a paper publication to electronic publication inaugurated a new technology. This paper defines the concept of electronic publishing, its necessity and characteristics responsible for the spread of electronic publishing. It highlights the e-publishing models, changing role of libraries and information centres due to e-publishing and also its advantages and disadvantages.

Keywords: Academic Libraries, Electronic Publishing

Introduction

The computer and new technologies revolutionary changes in whole ation. The advent of information ved by evolution and opulence formation resources, has cast an libraries. In this electronic era es are replacing the traditional llection, storage and retrieval. berg can be called as the father nting. He led the inception of the

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ORIGINAL ARTICLE

Synthesis and characterization of nanostructured Cu-ZnO: An efficient catalyst for the preparation of (*E*)-3-styrylchromones

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KEYWORDS

Heterogeneous catalysis;
ZnO nano flakes;
Knoevenagel condensation;
Knoevenagel-Doebner reaction;
3-Styrylchromone

Abstract We have explored nanocrystalline ZnO and Cu-ZnO catalyst for the preparation of 3-styrylchromones with trans selectivity derived from 3-formylchromones. Synthesis of ZnO and Cu-ZnO nano flakes (NFs) was carried by precipitation technique. The analytical techniques such as UV-Visible spectroscopy, X-ray diffraction (XRD), Brunauer-Emmett-Teller (BET), field emission scanning electron microscopy (FESEM) and energy-dispersive analysis X-ray spectroscopy (EDAX) were used to characterize the catalysts. The XRD pattern showed highly pure wurtzite ZnO and Cu-ZnO. The FESEM images showed nano flakes such as sunflower seed morphology in the range width of 9–34 nm and length 90–180 nm. Doping of copper in ZnO was employed to study the selectivity of Knoevenagel and Knoevenagel-Doebner reactions. Knoevenagel condensation was catalyzed efficiently by pure ZnO nano flakes, whereas the Cu-ZnO nano flakes facilitate the Knoevenagel-Doebner reaction. Present synthetic protocols are novel, very clean and high yielding for synthesis of 3-styrylchromones. Almost same yield was observed to the recycled catalyst up to four runs.

1. Introduction

Chromone derivatives are of great interest for chemists and biochemists, owing to their potential biological activities and natural occurrence (Faridoon et al., 2016). Styrylchromones are small group of natural flavonoids which have shown anticancer (Maicheen et al., 2013), antiviral (Vints and Rozen, 2014), antibacterial (Ghani et al., 2013) and antiallergic (Velema et al., 2013) activities. Natural 2-styrylchromone hormothamnione and 6-desmethoxyormothamnione were isolated from marine cryophyte *Chrysophaeum taylori* exhibited potent cytotoxic activity (Gerwick, 1989). The synthesis, reactivity and biological evaluation of styrylchromone derivatives become an

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ORIGINAL ARTICLE

Synthesis and characterization of nanostructured Cu-ZnO: An efficient catalyst for the preparation of (*E*)-3-styrylchromones

Sachin P. Kunde [a], Kaluram G. Kanade [a,b,*], Bhausaheb K. Karale [a], Hemant N. Akolkar [a], Pratibha V. Randhavane [a], Santosh T. Shinde [a]

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1. Introduction

Chromone derivatives are of great interest for chemists and biochemists, owing to their potential biological activities and natural occurrence (Faridoon et al., 2016). Styrylchromones are small group of natural flavonoids which have shown anticancer (Maciuca et al., 2013), antiviral (Vitts and Rozen, 2014), antibacterial (Ghani et al., 2015) and antiallergic (Valenti et al., 2013) activities. Natural 2-styrylchromone hormothamnione and 6-desmethoxyormothamnione were isolated from marine cryophyte *Chrysophaeum taylori* exhibited potent cytotoxic activity (Gerwick, 1990). The synthesis, reactivity and biological evaluation of styrylchromone derivatives become an

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ORIGINAL ARTICLE

Synthesis and characterization of nanostructured Cu-ZnO: An efficient catalyst for the preparation of (*E*)-3-styrylchromones

Sachin P. Kunde [a], Kaluram G. Kanade [a,b,*], Bhausaheb K. Karale [a], Hemant N. Akolkar [a], Pratibha V. Randhavane [a], Santosh T. Shinde [a]

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KEYWORDS

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ZnO nano flakes;
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Use of web 2.0 technology in library

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Abstract: *Library 2.0 represents a new approach to library services. It is a model for constant and purposeful change which empowers library users through participatory user driven services. Library 2.0 is more about connections rather than collections. A library is a fusion of resources in a variety of forms including services and people supporting the entire life cycle of information beginning with creation, to dissemination, and use through to preservation.*

Web 2.0 is becoming a part of everyday life online. People are reading blogs even if they do not realize what they are, sharing photos, online, creating new content to share and much more. The free tools and fast internet speeds available make it easier then ever before and people are making the most of this increased ability to do and create online. Libraries are among the thousands of organizations that are utilizing such tools to better serve and engage with their users.

Key words: Web 2.0, library 2.0, blogs, web application, wikis, RSS.

Introduction: In the last few decades we have seen tremendous change in libraries due to information and communication technologies library use various tool and techniques to provide better services to the user of the libraries. Who were simply readers of the books are now changed into information seekers and this is mainly because of the way the internet and information communication technology tools have advanced the outlook of libraries. Web 2.0 refers to World Wide Web sites that highlight user generated information, content, usability, and interoperability. It does not refer to an update to any technical specification, but rather to cumulative changes in the way web pages are made and used.

Libraries are fast growing organism where web 2.0 applications are a recent concept, the web 2.0 networking system promises to relieve all library management and all library techniques and also make possible comprehensive inventory.

Web 2.0: "Web2.0" term was first used in January 1999 by Darcy Dance, a consultant on electronic information design. Web 2.0 is beginning to appear, and we are just starting to see how that embryo might develop. In 2004, John Battelle and Tim O'Really out lined their definition of the 'web as platform' where software applications are built upon the web as opposed to upon the desktop.

The term web 2.0 refers to the second generation development and design of the web to facilitate communication and information sharing, web 2.0 concept have lead to the development and evaluation of web based communities social networking sites instant messaging, video sharing sites, news, feeds, wikis, blogs etc. in short web 2.0 is noting but technology where the users can generate their own content and can disseminate it through the web.

Web 2.0 characteristics: Main characteristics of web 2.0 are as following:

1. Rich use experience
2. Freedom
3. Openness
4. Metadata
5. User participation
6. Dynamic content
7. Web standards

Tools of web 2.0 use in library: Most of the libraries use some specific tools which are very popular in society. Library professionals use those too professional and personal developments. These tools are free tools and the libraries are using these tools to generate services.

1. Wiki
2. Blogs
3. RSS feeds
4. Instant messaging
5. Social networking
6. Tagging
7. Mashups

6. Instant massaging: Instant messaging (IM) refers as virtual reference service. Through this service librarians can handle user's enquiries instantly in a pre-defined time period and answers user's questions without wastage of time from a remote location. But application of this tool is found only in seven national libraries websites. These libraries includes national library of USA, China, Belarus, France, Switzerland, UK and New Zealand. They have used instant messaging service for reference service, making users aware about library services and guidance for the use of resources. Library of Congress, National Library of USA have instant messaging service for different section includes Newspapers/Periodicals, American Memory Historical Collections and Digital Reference Section.
7. Social Networking: The most commonly social networking site used by national libraries is Facebook. Some of the national libraries are also using other websites for social networking services such as MySpace, Linkedin, Draugiem, etc. These websites offer informal or alternative way of communication with friends, family or users, who are spread all over the world. Social networking sites "offer a free and easy way to create personal web pages and fill them with content such as blogs, digital photographs, favorite music, short video and much more" (Barsky & Purdon, 2006). In this study out of 28 national libraries (which are using Web 2.0 technologies) only 16 national libraries have account on social networking site. National libraries are using social networking sites to share news and events, photos and video of past events. They are also using these sites for sharing various links on different issues. It was found that only four national libraries are using their Facebook account to share the update of the resources. Some national libraries are also using these website for creating awareness about their services and resources such as The British Library activity on Facebook entitled "Item of the Week" creates awareness among library users about their library collection.
8. Tagging: Tagging essentially enables users to create subject headings for the object at hand. As Shanhi (2006) describes, tagging is essentially Web 2.0 because it allows users to add and change not only content (data), but content describing content (metadata). In Flicker, users tag pictures. In Library Thing, they tag books. In Library 2.0, users could tag the library's collection and thereby participate in the cataloging process.

   Tagging simply makes lateral searching easier. The often-cited example of the U.S. Library of Congress's Subject Heading "cookery," which no English speaker would use when referring to "cookbooks," illustrates the problem of standardized classification. Tagging would turn the useless "cookery" to the useful "cookbooks" instantaneously, and lateral searching would be greatly facilitated. Of course, tags and standardized subjects are not mutually exclusive. The catalog of Library 2.0 would enable users to follow both standardized and user-tagged subjects; whichever makes most sense to them. In turn, they can add tags to resources. The user responds to the system, the system to the user. This tagged catalog is an open catalog, a customized, user-centered catalog. It is library science at its best.
9. Mashups: Mashups are perhaps the single conceptual underpinning to all the technologies discussed in this article. They are ostensibly hybrid applications, where two or more technologies or services are conflated into a completely new, novel service. Retrieve, for example, conflates Flickr's image database and an experimental information architecture algorithm to enable users to search images not by metadata, but by the data itself. Users search for images by sketching images. In some ways, many of the technologies discussed above are mashups in their very nature. Another example is WikiBios, a site where users create online biographies of one another, essentially blending blogs with social networks.

   Library 2.0 is a mashup. It is a hybrid of blogs, wikis, streaming media, content aggregators, instant messaging, and social networks. Library 2.0 remembers a user when they log in. It allows the user to edit OPAC data and metadata, saves the user's tags, IM conversations with librarians, wiki entries with other users (and catalogs all of these for others to use), and the user is able to make all or part of their profile public; users can see what other users have similar items checked-out, borrow and lend tags, and a giant user-driven catalog is created and mashed with the traditional catalog.

   Library 2.0 is completely user-centered and user-driven. It is a mashup of traditional library services and innovative Web 2.0 services. It is a library for the 21st century, rich in content, interactivity, and social activity.

Conclusion: Web 2.0 is essentially about creating a other user experiences through providing interactive tools and services. The academic library of the future will offer more personalized

services via web 2.0 technology, in a way that presents information in a more familiar format to patrons.

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