

Effect of indigenous medicinal plants extract against selected seed borne fungi.

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ABSTRACT

Fungi are most destructive pathogen for the crop plants. After harvesting crop, many microorganisms may be growing on the stored seeds. These fungal pathogen spores adhere to seeds or internally growing. Such affected seeds are not used for sowing or food purposes.

In the present study seeds of common vegetables have been selected for this study. Isolation of many fungi have been carried out by the method described by ISTA, 1966. Many fungi isolated from vegetables seeds, out of which four very common fungi have been selected and brought into pure culture. Out of these fungi *Aspergillusniger* and *Fusariumoxysporum* were very common than the *Curvularialaimata* and *Drechsleralongostrata*. Effect of very common ten medicinal plants extract have been tested against spore germination, dry mycelial weight and sporulation of these selected four fungi have been carried out. It is clear from the study that *Solanumxanthocarpum*, *Semecarpusanacardium*, *Dioscoreabulbifera* and *Aegle marmelos* leaf extract were found more inhibitory for spore germination, growth and sporulation of seed borne fungi. Similar studies have been carried out in Okra by MashoodaBegam and Lokesh (2008). Similar results have been reported by Prabha et al (2003), Ashish et al (2008), Muzumdar et al (2004).

Key Words: Medicinal plants, Spore germination, Dry mycelial weight, Vegetables seeds etc.

INTRODUCTION:

Agriculture is a back bone of our country, whole economy of India is related with agriculture. India is having the second largest population after the China. Plants are utilized as a food, clothes, shelter, medicinal, fertilizer, antimicrobial agent and many other purposes. Green manuring has been on agricultural practice among European farmers. Indian plants wealth is about 45000 plant species, every year huge waste biomass of selected wild medicinal plants going to be waste. It may be utilized for agriculture purposes because most of plant having antimicrobial activity.

India is one of the mega biodiversity centre of the world. We are unaware of biomass produced by wild plants which going waste every year. If it is utilized for various purposes in agriculture, it improves crop yield eco-friendly. Every year huge biomass of plant is going waste. It may be utilized for agricultural purpose because most of plants having anti-microbial activity. By using chemical fertilizer, pesticides causes imbalance in biodiversity. If we used plant based product as fertilizer, pesticide and seed dressing material which do not causes any hazardous effect on plants and soil micro flora. By considering above importance this study is undertaken. Methi is important and the nutritious vegetable which cultivated in our region.

In the present study seeds of Methi have been selected for this study. Isolation of many fungi have been carried out by the method described by ISTA, 1966. Many fungi isolated from vegetable seeds, out of which four very common fungi have been selected and brought into pure culture. Out of these fungi *Aspergillusniger* and *Fusariumoxysporum* were very common than the *Curvularialaimata* and *Drechsleralongostrata*. Effect of very common ten medicinal plants leaf extract have been tested against spore germination, dry mycelia weight and sporulation of these selected four fungi have been carried out. It is clear from the study that *Solanumxanthocarpum*, *Semecarpusanacardium*, *Dioscoreabulbifera* and *Aegle marmelos* were found more inhibitory for spore germination, growth and sporulation of seed borne fungi of methi. Similar study has been carried out in Okra by MashoodaBegam and Lokesh (2008). Similar results have been reported by Prabha et al (2003), Ashish et al (2008), Muzumdar et al (2004).

MATERIALS AND METHOD:

1. Collection of plant materials:

Ten very common and easily available wild medicinal plants were selected, the leaf of selected plants were surface sterilized, dried in oven and ground into fine powder with the help of blender. 5% aq. leaf extract was found more effective for control of seed mycoflora of vegetable seeds specially methi.

2. Testing of stem extracts & Effect of leaf extract on percent incidence of seed mycoflora:

Aqueous extract of different percentage of the selected biomass was prepared by dissolving 1, 2, 3, gm of biomass leaf powder in 100ml sterile distilled water. The aqueous extract of biomass was tested against seed mycoflora. The biomass extract of effective percentage was determined. The biomass extract of five percent was found to be effective. Therefore five percent extract of medicinal plant biomass was used for further studied.

3) Detection of seed mycoflora:

a) Moist blotter plate method:

The isolation of seed borne fungi was carried out by blotter test method, described by ISTA (1966). Agarwal and Sorbhoj (1978). A pair of white blotter paper of 8.5 cm diameter was jointly soaked in sterile distilled water and placed in pre-sterilized Petri-plates of 10 cm diameter. 10 Seeds of Methi were placed equal distance on moist blotter paper. More than 400 seeds were tested for each treatment. Plates were incubated at room temp. for seven days. Identification and confirmation of different fungi on seed was made by preparing slides (Mukadam, D.S., 1997). Many fungi were isolated, out of these four were very common fungi brought in to the pure culture and further used.

b) Identification of seed borne fungi:

The seed borne fungi were preliminary identified on the basis of sporulation characters like asexual or sexual spores or fruiting structures. Detailed examination of fungal characters was done under compound microscope and their identification was confirmed with the help of latest manuals (Subramanian, 1971; Jha, 1993 and Mukadam, 1997). Pure culture of the identified fungi were prepared and maintained on PDA (Potato Dextrose Agar) slants.

4) Preparation of spore suspension:

For this 10ml sterile distilled water was poured in to the sporulating pure cultures of the seed borne fungi maintained on PDA slants for seven days at room temperature. The slants were shaken and the content was filtered through muslin cloth. The filtrate was used as spore suspension.

5) Study of spore germination:

During the present studies, 25ml of GN medium supplemented separately with 2ml of 5% plant extract was poured in 100ml borosil conical flasks. The flasks were autoclaved and inoculated separately with 2ml spore suspension of the test seed borne fungi which were maintained on PDA slants for seven days. The flasks were incubated at room temperature for twenty four hours. After incubation the spore germination was studied by preparing slides of the incubated solution and observing under the compound microscope.

The germ tube lengths of the germinating spores were measured in microns (μ) with the help of calibrated microscope. The flasks poured with 25ml of GN medium without the supplementation of 2ml of 5% plant extract inoculated separately with spore suspensions of test fungi were served as control.

6) Study of growth and sporulation of seed borne fungi:

During the present studies some common and dominant seed borne fungi of vegetable Methilike *Aspergillusniger*, *Curvulariatunata*, *Drechleralongirostrata* and *Fusariumoxyspor* were grown in GN medium supplemented separately with 2ml of five percent plant extracts of medicinal plant biomass for seven days at room temperature. After incubation contents of the flasks were filtered through pre-weighed Whatman filter paper No. 1. The filter papers with mycelial mat were oven dried for twenty four hours at sixty degree centigrade and reweighed. Growth of the seed borne fungi in terms of dry mycelial weight was measured by subtracting the initial weight of the filter paper from the final weight of filter paper with mycelial mat. The seed borne fungi grown in GN medium without supplementation of medicinal plant biomass extract were served as control. The sporulation was studied by preparing slides of the seed borne fungi before filtration.

Table-1: Effect of leaf biomass of selected medicinal plants on spore germination, growth and sporulation of *Aspergillusniger*, *Curvulariatunata*, *Drechleralongirostrata* and *Fusariumoxyspor*.

Sr. No.	Medicinal plants	Aspergillusniger			Curvulariatunata			Drechleralongirostrata			Fusariumoxyspor		
		SG	DM W	SP N	SG	DM W	SP N	SG	DM W	SP N	SG	DM W	SP N
1	<i>Abrusprecatorius</i> L.	60	40	++	35	30	++	45	36	++	40	25	++
2	<i>Aegle marmelos</i> (L.) Corr.	22	22	++	30	16	+	30	12	+	24	30	++
3	<i>Balanitesaegypti</i> caDelile.	62	50	+++	70	42	+++	69	38	+++	62	45	+++
4	<i>Daturametel</i> L.	52	35	++	35	22	++	35	32	++	30	30	++
5	<i>Dioscoreabulbife</i> ra L.	32	25	++	28	20	++	20	18	++	24	15	++
6	<i>Helicteresioral</i> L.	60	29	+++	50	27	+++	50	22	+++	60	16	++
7	<i>Sapinduslaurifol</i> iusVahl.55	50	25	+++	30	24	+++	30	32	++	32	25	+++
8	<i>Semecarpus80an</i> acardium L.	26	20	+	22	15	++	28	15	+	22	20	++
9	<i>Solanumxanthoc</i>	28	19	++	26	14	+	24	20	++	18	13	+

arjunaSchra.	70	40	++	60	28	+++	52	35	+++	56	35	+++
<i>Vitexnegundo</i> L.	80	58	+++	84	50	+++	70	48	+++	80	50	+++

SG: spore germination %; DMW: dry mycelial weight (mgs); SPN: sporulation
+ = Low, ++ = Medium, +++ = High

RESULT AND DISCUSSION:

It is clear from the result presented in Table 1 that the leaf biomass in the form of extract (5%) of all the test medicinal plants were found more or less inhibitory to spore germination, growth in the form of dry mycelial weight and sporulation: of all selected seed borne fungi.

It is evident from the result that leaf extract of *Aegle marmelos*, *Dioscoreabulbifera*, *Semecarpusanacardium* and *Solanumxanthocarpum* were found more inhibitory for spore germination, growth in the form of dry mycelial weight and sporulation of all selected seed borne fungi of methi than the other test medicinal plants. Effect of leaf extract of *Aegle marmelos* was found more inhibitory for spore germination of *Aspergillusniger* (22%), similarly growth in the form of dry mycelial weight in the leaf extract of *Solanumxanthocarpum* was 19 mg and sporulation of the fungus more inhibited by the leaf extract of *Semecarpusanacardium* as compared with the other test medicinal plants.

Effect of leaf extract of test medicinal plants on the spore germination of *Curvulariatunata* found more inhibitory in the leaf extract of *Semecarpusanacardium* (22%), growth more inhibited in the leaf extract of *Solanumxanthocarpum* (22 mg) and sporulation also very low in the same plant extract than the other test medicinal plants.

Effect of leaf extract of test medicinal plants on the spore germination of *Drechleralongirostrata* was found more inhibitory in the leaf extract of *Dioscoreabulbifera* (20%), growth and sporulation was found more inhibitory in the *Aegle marmelos* (12 mg.).

Effect of leaf extract of selected medicinal plants on the spore germination, growth in the form of dry mycelial weight and sporulation of *Fusariumoxyspor* was found more inhibitory in the leaf extract of *Solanumxanthocarpum* (18%) and (13 mg) respectively than the other test medicinal plants.

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REVIEW OF LITERATURE: ONLINE AND OFFLINE CONSUMER BUYING BEHAVIOR

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Abstract: Marketing is to identify needs and wants of the consumer and satisfy it profitably; it's true but what else when your targeted consumer's taste and preferences is dominated by some external and internal stimuli and factors. In this rapidly changing business environment where communication technology, media has change the way to interact with consumers and persuade them to change their choices. Many researchers have been made various studies on the online and offline consumer buying behavior and find out the factors influencing consumer buying behavior. The purpose of this paper is to provide analytical and comprehensive review of extensive literature of previous studies.

Key Words: Consumer buying behavior, online consumer buying behavior, offline consumer buying behavior.

Introduction

This chapter aims to provide reviews of literature related to the study have been presented. The literature review analyses, describe, evaluate and summarize which are previously carried out in the field of offline and online consumer behavior in retailing. It provides the basic understanding of factors influencing decision making process of consumer in online and offline buying as well as it provide research gap and direction to the study. A systematic study of literature review is helpful in developing clear focus and directive study.

Consumer behavior is the understanding of fundamental concepts of how and why consumers behave in a particular way while online and offline shopping. In offline and online retailing, marketers' would like to know about consumer buying behavior, which involves an understanding of different factors influencing behavior of an offline and online consumer.

This paper is focused on the study of different dimensions of online and offline consumer buying behavior with the help of systematic review of literature.

Objectives:

1. To understand basic concept of consumer behavior in online and offline buying
2. To find out the factors affecting on the online and offline consumer buying behavior.

Research Methodology: This is a review paper. Thus descriptive research is conducted where 9 doctoral thesis and 64 research papers and articles have been studied. It provide classification of research papers and articles on the basis of key factors, statistical tools used, number of respondents, journal wise and year wise frequency distribution.

Systematic Review of Literature:

In this paper research articles, research papers and doctoral thesis are extracted from the resources like, Google scholar, Shodhaganga, Research gate, inflibnet.

The thesis, research paper & article are selected on following parameters

Only thesis and papers written and published in English are considered.

Doctorial thesis since 2010 and research paper since 1999 were taken to provide systematic

Review of literature on offline and online consumer buying behavior.

This paper includes the findings and methodologies used in 9 doctoral thesis and 64 research papers. The following table represents an outline of various research studies conducted to analyze the offline and online consumer behavior.

Table No. 1- Overview of selected Doctorial thesis

Source: Authors Compilation

Researcher	Ph.D. Title	Survey year	Survey place	Sample size	Sampling & Respondents	Statistical tools used
S. Shalini	Online Shopping Dynamics- A study in Coimbatore City, Tamilnadu	2010	Coimbatore City Tamilnadu	519	Purposive Sampling of College Students, professionals & Employees	Correlation , Chi-Square T-test One way ANOVA, Multiple Regression, Factor analysis
Nilesh Prakash Gokhale	Buying Decision Process & Role of internet – A study of select Segment in and around Pune	2011	Pune City Maharashtra	1000	Purposive Sampling of MBA/MCA Students & Software Professionals	Average, Percentage, Correlation , Chi-Square T-test One way ANOVA
Yogesh Uttam Gaikwad	An Analytical study of change in consumer Shopping behavior with special reference to organized retail sector in Nashik City (2001-2010)	2013	Nashik Maharashtra	1006	Random Simple Sampling of consumers & Employees of organized Retail	Simple comparison, percentage, chi-square test
Shipmi Sidharth Shriram	An Analytical study of Factors influencing Customer Buying Decision for male cosmetics products in Pune Region	2014	Pune City Maharashtra	990	Multi-Stage Sampling of students, professionals, service class & Business class	Factor Analysis, Correlation, Regression, path analysis
Priyanka Singh	Online Shopping- Evaluating the relationship among Perceived Value, Satisfaction & Trust Based on Consumers' Perspectives'	2015	Gwalior M.P.	1250	Convenience Sampling of students of Gwalior & IPS group of College	Factor Analysis, Correlation, Regression
Tanvi Patiyal	Online Shopping: A Paradigm Shift in Buying behaviour of Young Consumers in Himachal Pradesh	2016	Himachal Pradesh	720	Multistage Sampling of students of University, Colleges, Secondary Schools	Percentage Mean Correlation Chi- Square Factor Analysis ANNOVA
Shivkumar Masanappa Belli	Online Consumer Behavior- A Study on impact of Trust & Risk Perception on online apparel Buying Behavior	2017	Karnataka	658	Judgment Sampling of respondents who buy apparels online	Average, Percentage, Correlation , Chi-Square T-test
S. Maha lakshmi	Online shopping behavior of women towards the purchase of fashion jewellery- A study with reference to working women's in Chennai City	2017	Chennai City Tamilnadu	516	Random Simple Sampling of Working women's	Factor Analysis, Multivariate analysis, ANOVA, Paired Sample Test, Chi-square
Nidhi Sharma	A study on Consumer Perceived Risk towards online shopping in selected cities of Gujarat State	2017	Ahmadabad, Vadodara, Surat, Rajkot	610	Judgment Sampling of Internet users	Factor Analysis, Regression, chi-square test

Table No. 2- Learning's form the analysis & identification of key factors

Table No. 3 – Overview on Selected Research Papers

S. Shalini	Perceives risk, product quality, non delivery, economic risk, return policy ease of use, web factors are studied in general. All the factors are not necessarily influencing for different product categories.
Nilesh Prakash Gokhale	Age, Education & Occupation are considered as independent variables & Extent of Internet use in pre buying information search, pre buying comparison, actual buying are taken as dependant variables.
Yogesh Uttam Gaikwad	Age, Education, income, Qualification, Gender, preference, purchase frequency, motives, Source of information, selection factors, influencing factors, Expectation, mode of payment. This study was focus only on the consumer behavior toward organized retail.
Shipmi Sidharth Shriram	Study is limited for male consumer buying behavior of cosmetics products. Factors studied are demography, self image, normative influence & attitude towards products.
Priyanka Singh	It is a general study of online shopping behavior considering perceived risk, value, trust & satisfaction. It provides the idea about expectation & why consumer behaves in a particular way. The study has not focused on a particular segment of product
Tanvi Patiyal	This study is focus on various influence of factor like media, demography, privacy, recommendation on the youth with respect to online shopping in general.
Shivkumar Masanappa Belli	Perceived Risk, Customer Trust, Web site Trust, and Fashion Innovativeness. The study focus only on online consumer buying behavior of Apparels
S. Mahalakshmi	This study is limited towards the online buying behavior of fashion jewellery by working women's & factors considered are Demography, Psychology, Social, technical, Attitude, perceived risk
Nidhi Sharma	Only Perceived risk of different factors and its relation with demographic are studied

Source: Authors Compilation

PhD Thesis Focusing on Online Consumer Buying Behavior	6
PhD Thesis Focusing on Offline Consumer Buying Behavior	3

Studies related with offline consumer behavior are the general studies. In these three thesis only one researcher has studied keeping a particular product in focus and analyses the factors influencing on male gender. Remaining researcher studied the influence of different factors like Demographic, Psychographic, Social, Technical, Economical, and Cultural on the buyer behavior. In case of study of online buyer behaviour scope of the study was limited to only one product like Jewellery, Apparels & factors influencing. Another research had focused on the online buyer behavior in general; keeping influencing factors are the backbone of studies on demographic characteristics.

As retailer is shifting form "Brick & Mortar & Pure Web" to "Brick & Click" Marketing, so comparison of offline & online Buyer buying behavior is a vital subject to study.

Sr no	Author	Topic	Publication Details	Survey Year & place	Sample size	Respondents	Research Method
1	S. Bellman et. al	Predictors of online Buying Behavior	Journal Of Communication system of ACM Vol:42, No:12	U.S.A. 1999	10180	PC Owners	Survey
2	Gerald Haubl	Consumer decision making in online shopping environment: the effects of interactive decision aids	Decision Aid	Canada 1999	249	Undergraduate students	Survey
3	Na Li & Ping Zhang	Consumer online shopping attitude & behavior	Journal Of Information System, 509	U.S.A. 2002	35	-	Conceptual Study
4	Marios Koufaris	Applying Technology Acceptance Model & Flow Theory to online consumer behavior	Journal of Info. System Research, Vol: 13, No:2, pp 205-223	U.S.A. 2002	280	Customers	Survey
5	Christy M. K. Cheung	Online consumer behavior: A review & agenda for future research	16 th Bled E-com Conference on E-Transformation	Hong Kong 2003	351	-	Conceptual Study
6	Brion J. Corbitt	Trust & e-commerce :a study of consumer perception	Journal Of Electronic Commerce & research vol:2	Australia 2003	80	Internet users	Survey
7	Efthymios constantinides	Influencing the online consumer's behavior: the web experience	Journal of Internet Research, vol:14, no:2, pp 111-124	U.S.A. 2004	48	-	Conceptual Study
8	Joey F. George	The theory of planned behavior & internet purchasing	Journal of Internet Research, vol:14, no:2, pp 198-212	U.S.A. 2004	193	Undergraduate students	Survey
9	Ellen Garbarino	Gender differences in the perceived risk of buying online & the effect of receiving site recommendation	Journal of Business Research 57, pp 728-775	U.S.A. 2004	260	Men's & women's'	Survey
10	Christy M. K. Cheung et. al	Consumer satisfaction with internet shopping: A research framework & propositions for future research	Research gate Publication	Hong Kong January 2005	66	-	Conceptual Study
11	Enrique Binge et. al	The impact of internet user shopping pattern & demographics on consumer mobile buying behavior	Journal of Electronic commerce research Vol:6 no: 3	Spain 2005	2104	Internet users above 14 age	Survey
12	Umair Cheema et. al	The trend of online shopping in 21 st century: Impact of Enjoyment in TAM model	Asian Journal of Empirical Research 3(2): 131-141	Pakistan 2007	150	Internet users	Survey
13	Charles Dennis et. al	E-consumer behavior	European journal of Marketing , Vol: 21, Issuc: 10, pp 5-44	UK 2008	-	-	Conceptual Study
14	Dan J Kim et. al	A trust base consumer decision model in E-commerce the role of trust, risk and their antecedents	Decision Support System, Vol:44, Issue:2 Jan 544-564,	U.S.A. 2008	468	Online Consumer	Survey
15	Xiaoming Meng et. al	Developing model of E-Commerce E-marketing	International Symposium on Information processing 225-228	China 2009	-	-	Conceptual Study
16	Charles Dennis et. al	The influence of social e-shopping in enhancing young women's online shopping behavior	Journal of consumer behaviour vol:9, issue 2,pp 151-174	U.K. 2010	30	Under graduate women's	Survey
17	Young A. Park et. al	Influence of consumers' online decision making style on comparison shopping proneness & perceived usefulness of comparison shopping tools	Journal of E-commerce research 11(4) pp 342-354	Australia 2010	355	Online consumers'	Survey
18	William K. Darley	Towards an integrated framework for online consumer behavior & decision making process	Psychology & Marketing, Vol:27, issue 2, pp 94-116	U.S.A. 2010	62	-	Conceptual Study
19	Sahar Karimi et. al	A model of internet shopper behavior : a cross sector analysis	International Conference on Info. System pp 87	U.K. 2010	-	-	Conceptual Study
20	Matthew K. O. Lee et. al	Consumers decision to shop online: The moderating role of informational social influence	Information & Management, 48, 185-191	Hong Kong 2011	104	Students	Survey
21	Ruchi Nayyar et. al	Determinants of internet buying behavior in India	Asian Journal of Business Research Vol:1 No 2	India 2011	500	Urban & Semi urban customers'	Survey
22	Yulihassari et. al	Factors that influence consumer's intention on shopping online	International journal of Marketing Studies vol:3 no. 1	Malaysia 2011	300	Online consumers	Survey
23	Mustafa I. Eid	Determinants of E-commerce customer satisfaction, trust & loyalty	Journal of Electronics commerce research Vol: 12 no 1	Saudi Arabia 2011	218	Students	survey
24	Susan Rose et. al	Online customer experience : A review of B2C online purchase context	International journal of management Review vol:13, 24-39	UK 2011	-	-	Conceptual study
25	Mhd. H.	An analysis of factors affecting on	International journal of	Iran	200	Customers of	Survey

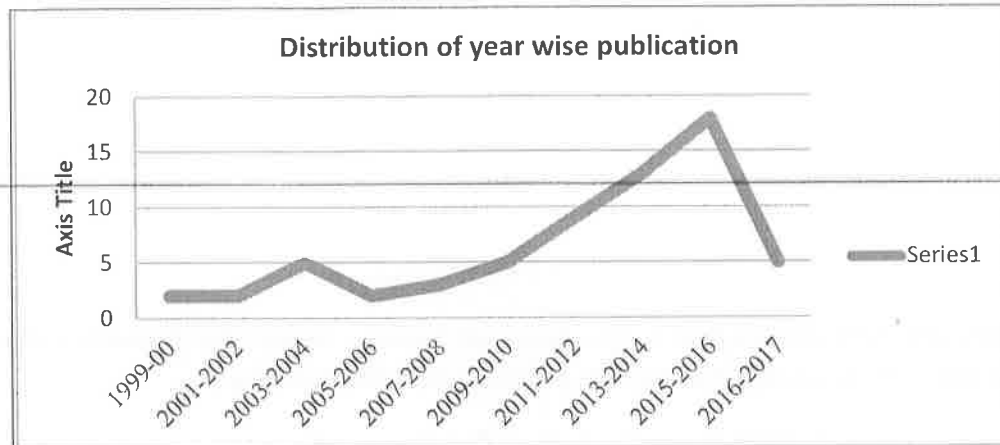
	Moshref Javadi et. al	online shopping behavior of consumer	Marketing Studies vol:4 no. 5	2012		online stores	
26	Sunita Sikri et. al	Growth & challenges of retail industry in India	Asian pacific journal of marketing and management review vol 1 issue:1	India 2012	-	-	Conceptual Study
27	Ashraf Beny Mhd. Et. al	How do online advertisements affects consumer purchasing intention	European journal of business & Management, vol 4 no 7	Jordan 2012	399	Students	Survey
28	Iuliana cetina et. al	Psychological & social factors that influence online consumer behavior	Social & Behavioral Science 62, 184-188	Romania 2012	-	-	Conceptual study
29	Dr. Gangadeep, Dr. R. Gopal	A study on factors affecting on online shopping behavior of consumers	International journal of science and research publication vol 3 issue 6	India 2013	70	Men's & Women's	Survey
30	M. Nick Hajli	A study of the impact of the social media on consumer's	International journal of marketing research vol 56 issue 3	UK 2013	237	Male & female Social media users	Survey
31	Adeyanju apejoye	Influence of celebrity endorsement of advertisement on students' purchase intention	Journal of Mass Communication & journalism vol 3 issue 3	Nigeria 2013	120	Students	Survey
32	Houshang mobarakabadi	Influence of online shopping behavior factors of E-satisfaction of customers	Journal tecknologi 64-3 1-7	Malaysia 2013	146	Online buyer	Survey
33	Abdalslam S. I. Mhd. et. al	Impact of trust & past experience on intention to purchase in E-commerce	International journal of Engineering Research & Development vol 7 issue 10 pp 28-35	Malaysia 2013	119	Employees	Survey
34	Rahul Argha Sen	A study on factors influencing online purchase of products in Kolkata	International journal of management & commerce innovation vol 2 issue 1 pp 44-52	India 2014	200	Students & Adults	Survey
35	Elisabeta Ioanas et. al	Social media & its impact on consumer behavior	International journal of economic practices & theories vol 4 no 2	Romania 2014	116	Social media users	Survey
36	Sayed Nasir Ketabi et. al	Analysis of effective factors on online purchase intention through theory of planned behavior	International journal of academic research in business & social sciences vol 4 no 4	Iran 2014	260	University students	Survey
37	James E. Richard	Facebook: Investigating the influence on consumer purchase intention	Asian Journal of business research Vol 4 issue 2	New Zealand 2014	215	Facebook user	Survey
38	Raushan Gross	The theoretical consumer decision making model: the influence of interactivity & information overload on consumer's intent to purchase online	International journal of business management & economic research vol 5 issue 4 pp 64-70	North Carolina 2014	-	-	Conceptual Study
39	Maoyan et.al	Consumer purchase intention research based on social media marketing	International journal of business & social sciences vol 5 no 10	China 2014	177	Students & Workers	survey
	Lim Pei Ling et. al	Does gender play a role in online consumer behavior?	Global journal of management & business research vol 14 issue 7	U.S.A. 2014	-	-	Conceptual study
41	Dipti jain et. al	Consumer behavior towards online shopping	IOSR journal of business & management vol 16 issue 9 pp 65-72	Delhi 2014	160	Online shoppers	Survey
42	Andrew T. Stephen	The role of digital & social media marketing in consumer behavior	Current opinion in psychology 2015	UK 2015	39	-	Conceptual Study
43	Dr. Suchi Singhal et. al	Online & offline consumer buyer behavior	International journal of applied service marketing perspectives vol 4 no 2	India 2015	57	-	Conceptual Study
44	Shahzad Ahmad khan et. al	An empirical study of perceived factors affecting customer satisfaction to re-purchase intention in online stores	Journal of service sciences & management 8, pp 291-305	China 2015	302	Online consumers	Survey
45	Dr. D. Meheta et. al	Review of literature on online Vs offline consumer behavior	2015	India	25	-	Conceptual Study
46	Yi Jin Lim et. al	Factors influencing online shopping behavior: the mediating role of purchase intention	Economic & Finance 35, 401-410	Malaysia 2015	662	Undergraduate & postgraduates	Survey
47	Asad Ahmad et. al	Mapping online buyer behavior: A critical Review of Empirical Studies	Pacific business review international vol 8 issue 2	India 2015	25	-	Conceptual Study
48	Ni Luh Putu Indiani et. al	Perceived risk & trust as a major determinants of actual purchase, transcending the influence of intention	Asian Marketing journal vol 7 issue 1 pp 1-13	Indonesia 2015	100	Tourist	Survey
49	Sulciman A.	E-integrated marketing	American journal of	Jordan	455	Online	Survey

	Al Khattab et. al	communication & its impact on consumer's attitude	industrial & business Management vol 5 pp 538-547	2015		consumers	
50	Ummula Vara Adrita	Preference of shopping online Vs offline	Journal of Art Sciences & Commerce vol 3 issue 3 pp 64	Bangladesh 2016	77	Students & workings	Survey
51	K. S. Silpa et. al	A study on people's perception towards online shopping	Bonfring international journal vol 6 no 3	India 2016	50	Online & offline buyers	Survey
52	Ashwini N. Majula R.	An empirical study on consumer perception towards online shopping	International journal of management & commerce innovation vol 3 issue 2 pp 1103-1110	India 2016	40	Male & Female	Survey
53	Li Na You Qiao Ming Li	Comparative study of online & offline consumer shopping perceived risk in clothing purchasing	International journal of management & commerce innovation vol 4 issue1 pp 673-676	Bangkok Thailand 2016	200	Men's & Women's	Survey
54	Pritam P Kothari et. al	A study on consumer attitude towards online shopping in India & its impact	International Journal of Advance research, Idea & innovation in technology vol 2 issue 6	India 2016	100	Customers	Survey
55	Ahmad Bilal Khilji	The influence of attitude on online buying behavior & moderator impact of culture	Journal of Marketing & Consumer Research vol 24	Pakistan 2016	200	Students	Survey
56	Mihaela Abalaesei	Electronic Word-of-mouth: factors that influence purchase intention	Intercultural communication & the future of education	Romania 2016	23	-	Conceptual study
57	Shruti jain	A study of factors driving Indian youth's intention to purchase online	NMIMS Management Review, Vol 28 pp 49-72	India 2016	216	Male & female	Survey
58	Carolyn Lo et. al	Understanding behaviors that lead to purchasing	2016	U.S.A.	-	-	Conceptual study
59	Rajdeep Singh et. al	Comparative study of factors affecting online & offline shopping	International Conference on Recent trends in techno. & its impact on Economy	India 2016	100	Men's & Women's	Survey
60	Sanjeev Prashar et. al	Effect of online shopping values & website cues on purchase behaviour: A study using S-O-R Framework	Vikapla, The journal of Decision Makers 42(1) pp 1-18	India 2017	318	Online buyers	Survey
61	Areeba Toor et. al	The impact of social networking marketing on consumer purchase intention	Asian journal of Business & accounting 10(1)	Pakistan 2017	300	Social media user	Survey
62	V. Vijay Lakshami et. al	Impact of gender on consumer purchasing behavior	IOSR Journal of Business & Management vol 19 issue 8	India 2017	-	-	Conceptual study
63	V shrikant	A business Review of E-retailing in India	-	India 2017	-	-	Conceptual Study
64	Snehal chincholkar et. al	Website attributes & its impact on online consumer buying behavior: an Empirical study of online consumers in Mumbai region	International Journal of Science & Technology vol 10 (47)	India 2017	123	Males & females	Survey

A review of online and offline consumer buying behavior has been summarized drawn from research papers and articles. Following were different statistical techniques utilized by the researches.

- Percentage, Mean, Mode, Median
- Simple Comparison
- Average Variance
- Standard Deviation
- Pearson Correlation coefficient
- Logistic Regression Analysis,
- Linear Regression Analysis & Multiple Regression Analysis
- Independent T- Test
- Paired T- Test
- One Way ANOVA
- Chi-Square Test

Figure: Year-Wise frequency-Distribution-of research papers



Authors Compilation

Table No. 4- Classification of papers on the basis of key factors identification

Total Paper Focusing on online Consumer Buying Behavior	
Key Factors under the study	No of Papers 44
Consumer Attitude	9
Website Characteristics	8
Psychological factors	8
Consumer Perceived Risk	7
Demographic , Social & Cultural Factors	5
Online buying Behavior & Attitude	7
Total Paper Focusing on Comparison of offline & online Consumer Buying Behavior	
Key Factors under the study	No of Papers 20
Consumer perception	7
Consumer taste & preference	7
Demographic, Social & cultural Factors	4
Risk, Privacy, Convenience	3

Table No. 5- Detailed analysis of key factors studied by authors

Factors influencing online & offline buying behavior	Author & year
Privacy, Internet Trustworthiness , Buyers Attitude	Joey F. George, 2004
Usability, Interactivity, Trust, Aesthetics, Marketing Mix	Efthymios Constantinides, 2004
Information Quality, Service Quality	Christy M. K. Cheung et. al, 2005
Age, Gender, Social Class, Website Experience	Enrique Binge et. al, 2005
Perceived Usefulness, Ease of Use, Perceived Enjoyment , Online Shopping Intention	Umair Cheema et. al, 2007
Information Quality, Privacy, Security, Site Reputation, Familiarity, Consumer Trust, Perceived Risk, Perceived Benefit, Intention to Purchase	Dan J Kim et. al, 2008
Convenience, Variety, Frequency of purchase, Lifestyle, Emotional Status, Web Atmosphere, Navigation, Age, Gender, Education, Income, Social Factors, Interactivity	Charles Dennis et. al, 2008
Online buying decision, comparison shopping tools, decision making style, shopping proneness, perceived usefulness,	Young A. Park et. al, 2010
Gender, social networking, enjoyment, ease of use, social e-shopping, attitude, intention	Charles Dennis et. al, 2010
User interface Quality, information quality, perceived Security, perceived privacy, customer satisfaction, customer trust	Mustafa I. Eid, 2011
Perceived Usefulness, Perceived Ease of Use, gender, age, education, income, position in organization	Ruchi Nayyar et. al, 2011
Comparison on the basis of Personal contact, information provision, time period of interaction, brand presentation	Susan Rose et. al, 2011
Online discussion forum, Social influence, Electronic word-of-mouth, Belief, Attitude, behavioral intention	Matthew K. O. Lee et. al, 2011

Financial Risk, Product Risk, Convenience Risk, Non-delivery risk, technology adaptation, return policy, demographic factors, attitude, online shopping behavior,	Mhd. H. Moshref Javadi et. al, 2012
Website search style, design, no. of advertise on site, site language, site reputation, ad size, ad contents, place of ad, ad quality	Ashraf Beny Mhd. Et. al, 2012
Friends groups, shopping group, work group, virtual group (Social Media group)	Iuliana cetina et. al, 2012
Time risk, Economic Risk, Product Risk, Social Risk, Psychological Risk, Physical Risk, Privacy Risk, Risk of Service	Li Na You Qiao Ming Li 2016
Factor of time, Economic Situation, Advertisement Influence, Post Purchase Experience, Post Regret related to purchase	V. Vijay Lakshami et. al 2017
Demographic Factors, Attitude, Social Networking Website, Social Factors, Website Design, Digital Literacy, Product Information	Snehal chincholkar et. al, 2017

Source: Authors compilation

Above factors has been classified in to two major categories – factors that promote online buying and factors that resist online buying and repelling buyer toward offline buying.

Following are the factors that favor online buying

Ease of information	Availability of help lines
24*7 availability	Availability of options
User friendly websites	Easy checkout
Web atmosphere	No embarrassment if not buy
Easy comparison	Mobile friendly shopping
Time saving	Rating and comments of peoples are helpful

The factors that resist online buying are

Technology failure	Trust
Privacy	Lack of transparency
Security	Web complexity
Confidentiality of data	

These factors play an important role in the behavior of consumer. Why consumers behave in a particular way? And answer is the internal and external stimuli which influence his/her choice at the time of real purchase.

Conclusion:

Online consumer buying behaviour has many dimensions to study, consumers behaves in different way in varied situation. From the extensive review of literature following facts have been concluded According many authors user friendly architecture of website, ease of information, perceived risk, transactional security, and price are the major influencing factors on the decision making of buyer during online purchase.

All the papers are emphasis on the different influencing factors on the offline & online buyers' buying behavior. Researcher has identified key factors like convenience, that affect buyer decision making in the purchase of Products. But factors influencing on the buying of services are yet not clearly studied. Even comparative study of offline and online buyer behavior with respect to particular products and services has not been studied in depth.

These factors clearly states that in the new era of digitalization marketer should move with new strategies to attract online buyers. Consumer Behavior is dynamic process so creating a loyal customer is really a difficult job but with effective online strategies and study of consumer behavior one can achieve desired results.

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11. Innovative Startups Coming in the E-Commerce Industry: Organizes the Unorganized Service Sectors in India

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Abstract

Over the last decade, the Internet made many changes in the way people purchase and sell goods and services on internet. Online retail or E-commerce has been revolutionized and increase the shopping expectations and behavior of consumers. Online retailing sector has been shows dramatic growth during last two decades. The implementation of new techniques makes the e-commerce sector more reachable, effective and efficient. Devices like Smartphone's, advance feature in mobile phones and increasing speed of internet connectivity lines, lowering prices of internet and devices is helping to raise traffic to the online shopping. Banking and other payment intermediary's are providing best and perfectly secured payment gateways. Online-retailers found it motivating and attractive to focus on developing a new way and channel which is different and separated from the services of mainstream players of E-commerce players.

Key Words: E-Commerce, E-tailers, E- Services, Vertical Specific Integration of E-Retailer

Introduction

Increasing use of internet through mobile device in urban as well as rural areas, increasing acceptance of online purchase, e-payments and young India has provided the e-commerce industry in nation the best chance to communicate and interact effectively with the customers. The Government's ambitious vision of 'Digital India' dreams to provide all the services and information on one stop shop by the way of introducing internet with low cost, good connectivity at the remote areas and every corner of the country to promote the online trade and services.

Conceptual Background

E-Commerce: E-commerce is the activity of selling and buying the goods and services online with the help of internet and other electronic devices. It is the application of the information and communication technology for the purpose of business transaction transactions.

E-tailer: Electronic retailing is selling goods using internet. It supports the concept of B2B, B2C transactions. With the introduction of E-retailing tools and techniques it becomes more convenience for the online businesses to manage their business effectively

Services: In economics, a service where no physical goods are transferred from seller to buyer. The seller has to perform his obligations on the willingness of the buyer of the services.

As per the National Industrial Classification 2008 Service Sector, Services Included

Wholesale and retail	Repairing and maintenance of vehicles
Transportation,	logistics and warehousing, storage
Information and communication	Finance and all types of insurance
Real estate activities	Professional, scientific, and technical activities
Administrative and support services	Administration of public services
Education	Health related services for society
Creative arts, entertainment	other services

Literature Review

Pinto, kalpana pathak, Mishra (2014): Are e-commerce valuations sustainable? - Indian e-tailing market is expected to touch \$32 billion by 2020 and account for 3% of India's overall retail market, where service industry will play an important role in this achievement.

Mishra, Sita. (Oct-Dec 2009): It is all about creating customer value in e-retailing, the application of information and communication technology from the point of origin to the end point has been organized electronically so as to create fast delivery, proper communication with customer, user friendly web sites and mobile apps are created values in the offerings. it provides one stop solution to consumer with less amount of charges.

Elissar, Ricard & Jean (Business research 2013) Customer loyalty and business integration models, Service quality feedback is the difference between customer expectation and actual delivery of services at the point of consumption. Things promises by e-retailers and their fulfillment decides the customer loyalty.

Shirshendu, Roy (2010) "Service quality dimensions of hybrid services", as an e-retailer one may promise to provide better services but as the services are associated with skilled person it must be standardized to get uniform services consistently.

Objectives of the Study

To study the role of E-Commerce in organizing the unorganized service sector in India

To study the Pros and cons of Vertical Integration of online and offline Service retailers

Research Methodology

This study based on secondary sources of information from various research publications, published newspapers, and conference publications, online journals & magazines, web sites, and books. The information has collected from libraries and websites.

Organized Service Sector

The major players in the industry like McDonald, Dominos, Pizza Huts, Subway, Traveling service providers like Kesari, Neeta, Veena world; Multispecialty hospitals like Wockheart, Apollo etc and many more in service industry has develop a network of organized services. As these major players have resources to attain the goal of organizing services.

Still a large area of service sector is unorganized in India. They are the individual players in the market with their brand image and goodwill. But the organized services players are the big threat in front of unorganized or individual services providers. This opportunity gives rise to "Vertical Specific Integration of E-tailers (VSIE)"

Vertical Specific Integration of E-Tailers (VSIE)

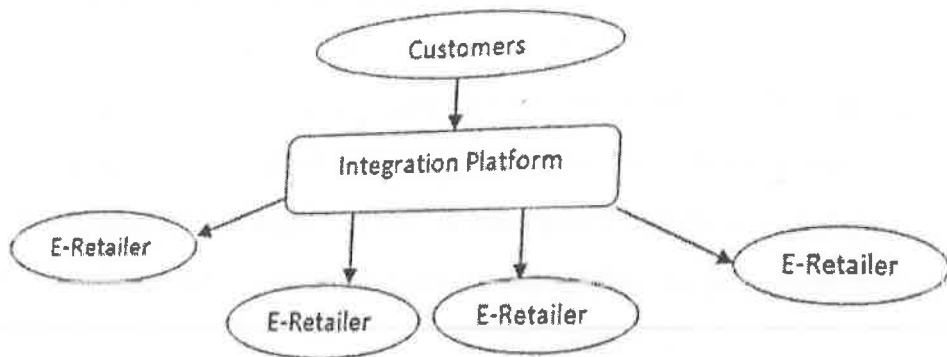
Vertical Specific Integration of E-tailers (VSIE) finds it attractive to target on specific product and services, as all the services are differentiates from its main e-commerce player. The importance of such kind of new venture development helps them to raise additional business, funds and more customers' acquisition and traffic generation. The crucial role of this kind of integration of industry with local service provides help in the customer driven service, availability of 24*7, less cost, user friendly.

Trivago has organized hotel industry this channel permit user to compare prices of different hotel bookings on a single click in a particular region for more that 400 booking sites for 1.8 million+ hotels in around more than 200 nations. Big Basket, an online grocery store, is marketing to deliver groceries at home without the Problem of traffic and saving time too. Uber,

Ola, the car travelling service providers has differentiated their offerings by providing best services and booking experience to customers.

Travel plan	Real Estate	Fashion	Furniture	Health	Education	Travel	Food Delivery
Make my Trip	Common Floor	Jabong	Pepperfry	Lenskart	Meritnation	Ola	Swiggy
Goibibo	99acres	Myntra	Urban Ladder	Portea	Edureka	Uber	Zomato
Yatra	Housing	YepMe	Zansaar	Medicare	Topper		Foodpanda
IRCTC	MagicBricks	Zovi	FabFurnish	Healthkart	embibe		Uber Eats
Cleartrip		Fashion and You			EduKart		

Authors Compilation: Vertical specific Integration of E-commerce players in India



Vertical specific Integration of E-Commerce

Advantages of Vertical Specific Integration of E-Commerce

Advantages for E-Retailer

1. Such integration provides an opportunity for small players to compete with large firm. Example- Big basket has integrated small grocery owners from small towns, is give them an opportunity and added customer base to them.
2. This integration is helpful in generating traffic to the service providers.
3. It is the most cost effective way for small players- it is difficult to develop a function website by an unorganized small service retailer. Even an auto rikshwa owner, small restaurants, low budgeted construction houses do not have that much technical

capabilities to create their virtual presence but with the help of such integration now they are registered as a online service provider with very small cost allocation that is almost negligible.

This type of integration help the firms to become a global service provider

4. Even one can customize their presence on global map
5. It has developed a new channel for business and people have accepted it.
6. 24*7 presence of the e-retailer make them available at any time
- 7.

Advantages for Customer

1. It provide convenience to customer for searching proper information
2. It provide a platform to compare pricing
3. It save time of customer
4. It is helpful for proper planning of any activity
5. It provides one stop solution to customer

Disadvantages of Vertical Specific Integration of E-Commerce

1. Improper web presence may leads to loss of customer valuable time
2. Misrepresentation of service provider may lead to loss of goodwill and consumer faith
3. Inappropriate information may create confusion among customer.
4. Cyber security is still a major constraint.
5. Services are associated with the skills of the service provider therefore it may not provide consistently.

Conclusion

"E-Commerce is going to impact multiple industries & business models. We can clearly see a significant transformation in sectors like consumer healthcare, Education, Travel, hotels, fashion, entrainment through digitally driven innovations like trivago, HealthKartPlus, swiggy, zomato, 99acers etc. Digital commerce has gave new dimensions to the e-commerce industry, in this development information about services and conditions, transparency in business promises, more option of choice, and ease of access help to attract the customers. Now a day, any person with a smart phone can learn about services, can make comparison of prices of different brands and also become aware about possible benefits and interactions - enabling him to increase effectiveness and minimize the costs of his gain.

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SYNTHESIS OF INDOLE-TRIAZOLE CONJUGATES AS POTENTIAL ANTIBACTERIAL COMPOUNDS

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Abstract : A simple strategy for the synthesis of densely functionalized small molecules having indole and triazole units has been developed. The adopted approach highly modular employs simple building blocks and involves three addition events in a sequence. We have used pTSA as a simple catalyst for the C2 and C3 alkylation of indole nucleus.

Key word: Antibacterial, Indole Nucleus

I INTRODUCTION

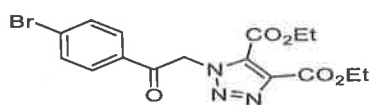
It is indisputable that advances in the central disciplines of chemistry are essential in amalgamating chemistry, biology, material science and medicine to contribute to human progress. Organic synthesis is definitely an indispensable tool to develop the molecules with the properties desired. The continuing evolution of organic synthesis depends heavily on the design/discovery of reactions and the development of concise strategies that would allow the synthesis of small molecules of varying complexity. The combinatorial chemical approach for molecular libraries synthesis conceptualized in the early 90's of last century and practiced until recently has been recognized as a versatile handle to populate the chemical space. However, despite the rapid speed of synthesis, no combinatorial magic bullet was delivered. Although, the reasons for this apparent lack of productivity remain unclear, it has been attributed in part to the molecular simplicity and to too much similarity within the library. This shifted the field slowly from the numbers game to focused, biologically relevant libraries, admitting the complexity and diversity in nature's small-molecules. Several efforts to identify planning concepts for syntheses of small-molecules, inspired by structural complexity, have been reported recently. These strategies include, among others, diversity oriented synthesis (DOS, Schreiber), biology oriented synthesis (BIOS Waldmann), "molecular editing" or "diverted total synthesis" (DTS, Danishefsky), and "libraries-from-libraries" (Houghten).¹

Amongst the all, the DOS combines the concepts of Target Oriented Synthesis and combinatorial technologies. It moves in the forward direction by identifying a set of complexity generating reactions and selection of substrates in such a way that products of each step will be the reactants for the next reaction. Moreover, the structural complexity, the function of natural products and, more importantly, the biological target have minimal role in the design of DOS libraries.

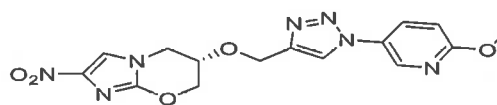
II. OBJECTIVE

The objective of this work is to develop strategies funded upon the concepts of DOS and the utilization of the resulting small molecules to identify the leads for developing new drugs for the Tuberculosis (TB) treatment. TB is a disease which is a major threat for the developing and the tropical countries and has been a neglected target in majority of the Pharmaceutical industries. Hence the first disease target taken up is Tuberculosis (TB). Tuberculosis is caused due to bacteria called "Mycobacterium Tuberculosis". These are aerobic, non-motile, non-capsulated, non-sporing and resistant to chemical disinfectant.³ TB is a highly contagious air borne infection which has its main target, the respiratory system, though it affects other organs as well. TB is the most common opportunistic infection affecting people living with HIV worldwide. TB is one of the leading causes of fatality in the developing nations. TB is a global infection and ranks second only to HIV as the leading killer infectious disease of adults worldwide. As per WHO report, one-third of the world's population is currently infected with the TB of which 80% are from the 22 high-burden countries alone.

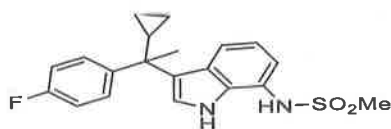
The present drugs available for the treatment of tuberculosis such as Isoniazide-isonicotinylhydrazide (INH), is orally highly active with low MIC (0.02 to 0.06 µg/mL) and exhibits bacteriostatic effects on bacillus but is highly toxic. Hence efforts are being made to develop new INH derivatives with greater activity, lower toxicity, and fewer side effects than INH. Sutherland and Ponnuswamy groups have recently synthesized a series of 1,2,3-triazoles with promising MIC values.^{4,5} In 2007 Michael G. Bell and co-workers have reported the identification of 3-aryl indoles (C, Figure 1) as potential mineralocorticoid receptor (MR) antagonists.⁶



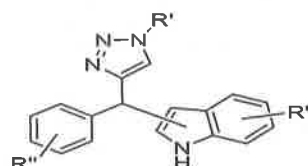
A (MIC 1.56 µg)



B (MIC 0.44 µg)



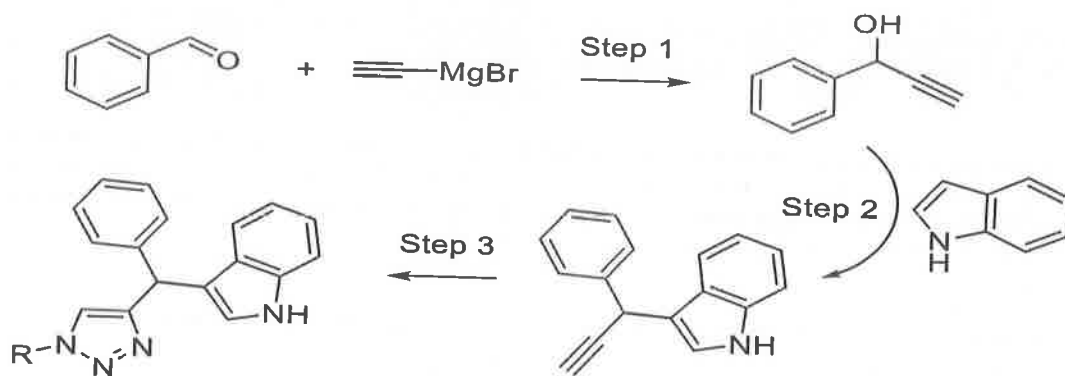
Selective nonsteroidal
MR Antagonist (C)



Newly designed
Targets (D)

Figure 1: Structures of some triazoles with potential anti-TB activity (A & B), of MR antagonist (C) and the newly designed scaffold integrating triazoles with C

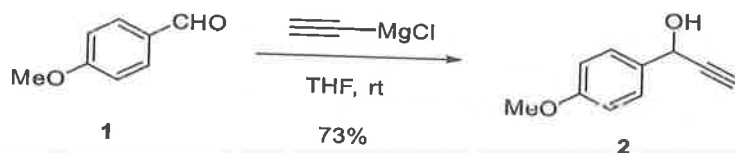
Funded upon the structural elements present in A – C, we have designed a new scaffold D that integrates three structural units namely a) triazole; b) indole; and a functionalize aryl ring being all the units pendant on a single carbon. The proposed strategy for the synthesis of compounds of type D has its own origins from the concepts of diversity oriented synthesis. As mentioned above, a DOS route will be highly effective if it involves the coupling of different structural units in sequence without involving any intermediate functionalization. Basically, this requires the products of each step should be the starting precursor for the next reaction. As shown in Scheme 1, our basic strategy comprises three steps and utilizes four different building blocks which are simple and commercially available. The first step is the addition of an alkyl anion to an aldehyde. The –OH in the resulting propargyl alcohol will be used as a handle for a Friedel–Crafts type alkylation at C2 or C3 of the indole.⁷ In the third step, the intact alkyne will be subjected for a Cu-catalyzed [3 + 2] cycloaddition with an azide (Click Reaction).⁸ Overall, in three steps, two of each new C – C and one C – N bond will be made.



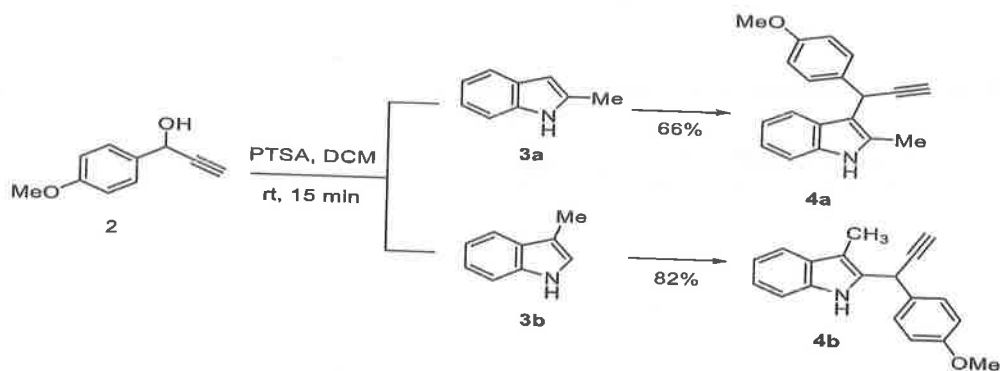
Scheme 1: Converging bi-molecular couplings/additions in sequence

III. RESULTS AND DISCUSSION

Our journey in this context started with selecting the preparation of alkynol 2, by using 4-methoxybenzaldehyde. The acetylene Grignard reaction was performed and Grignard was generated in situ by passing the acetylene gas into a solution of n-BuMgCl in THF (Scheme 2).



Scheme 2: Synthesis of the alkynol 2



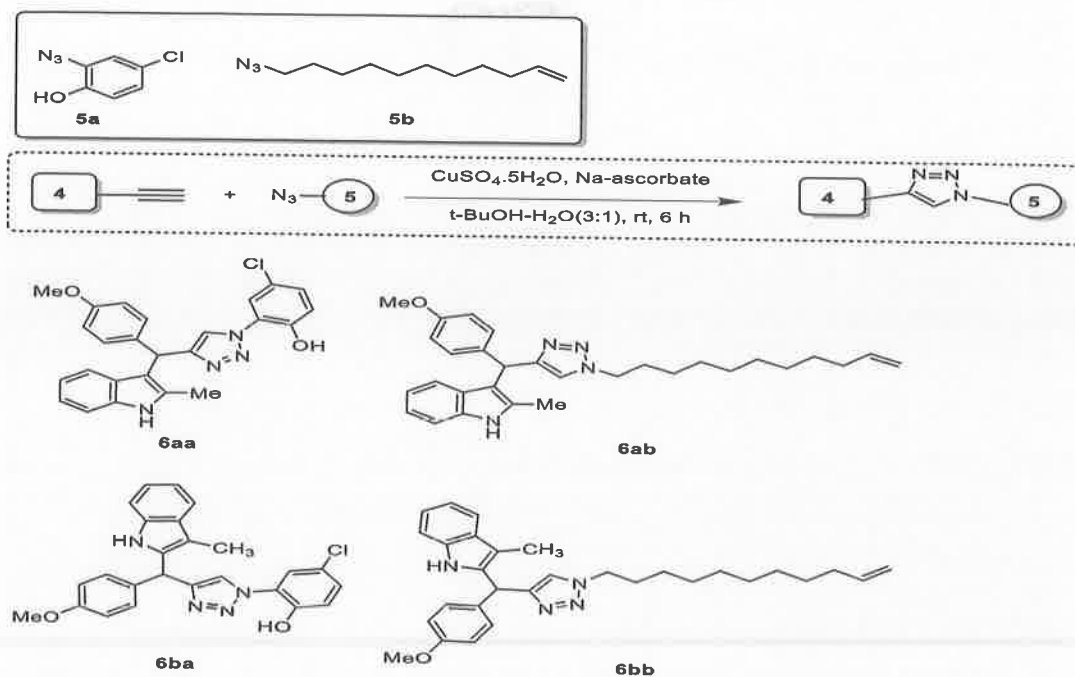
Scheme 3: Synthesis of indolyl alkynes 4a and 4b

The structure of alkynol 2 was determined with the help of spectroscopic data. In the ¹H NMR spectrum of compound 2, the alkyne – H was resonated at upfield as a doublet with a coupling constant of $J = 2.3$ Hz. The benzylic – H was resonated as a doublet of doublet with coupling constants $J = 5.8$ and 2.2 Hz. The second coupling was due to the pendant –OH group (resonated at 3.66 ppm as a doublet with $J = 1.77$ Hz). The methoxy group appeared as singlet at 3.82 ppm.

After having the alkynol 2 in hand, next we proceeded for the Friedel–Crafts reaction with 2-methyl (3a) and 3-methyl indole (3b). Amongst various acid catalysts screened, with *p*-TSA the requisite reaction proceeded smoothly at rt in dichloromethane as a solvent (Scheme 3). Thus the reaction of 2 with 3a gave 4a (66% yield) and that with 3b gave 4b (82% yield). The compounds 4a and 4b have been characterized by ¹H and ¹³C NMR data. The presence of the indole unit in compounds 4a and 4b is evident from the appearance of the 2-3-methyl groups around δ 2.25 ppm.

After having the two penultimate intermediate alkynes 4a and 4b, next we proceeded further for the final (3+2) cycloaddition by employing two representative azides 5a (2-azido-4-chlorophenol) and 5b (undec-10-enyl azide). The (3+2) cycloaddition reaction of 4a with 5a was carried out in *t*-BuOH–H₂O (3:1) in the presence of Na-ascorbate and CuSO₄·5H₂O to get the expected triazoles 6aa and 6bb

respectively.⁹ Similarly, 2 more triazoles **6ab** and **6ba** were synthesized by using alkyne **4b**. All the triazoles have been characterized by ¹H and ¹³C NMR spectral data. All the four compounds have been submitted for CSIR – IICT for the anti-bacterial screenings.



Scheme 4: The synthesis of the proposed triazole compounds **6aa** – **6bb**

IV. CONCLUSION

To conclude, a simple strategy for the synthesis of densely functionalized small molecules having indolecandtriazole units has been developed. The adopted approach highly modular employs simple building blocks and involves three addition events in a sequence. We have used p-TSA as a simple catalyst for the C2 and C3 alkylation of indole nucleus. Currently, the extension of this approach by employing a wide range of aldehydes, indoles and azides is under progress.

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- [10] **General Procedure for Click Reaction:** To a solution of alkyne **4a** (100 mg, 0.3636mol) in t-BuOH-H₂O (6mL+2mL, 3:1) 2-azido-4-chlorophenol (**5a**) (61.818mg, 0.3636mol), Na-ascorbate (68.393 mg, 0.34542mol) and CuSO₄.5H₂O (18.107 mg, 0.07272 mol) were added sequentially and the reaction was stirred for 6 h at rt. Then reaction mixture was extracted with EtOAc and dried with Na₂SO₄. The solvent was removed on low pressure and purified by column chromatography to afford **6aa** (120 mg, 74.17%) as a brown solid.

बंजारा साहित्य : संस्कृती, समाज व माध्यमांतर

- प्रा. व्ही. वी. रातोड
सटाणा महाविद्यालय

■ **प्रास्ताविक :** संस्कृती ही संकल्पनाच मानवी व्यवहाराशी संबंधित असून तिच्यातून कृती-उत्पत्तीसमय समग्र मानवी वर्तनाचे स्थान घडते. संस्कारांनी सिध्द झालेली ती संस्कृती. संस्कार आणि संस्कृती हे दोन्ही शब्द संस्कृतमधील 'सम्' अधिक 'कृ' धातूपासून निघून झालेले आहेत. मात्र 'संस्कार' हा शब्द 'नीती' आणि 'धर्म' यापुस्ताच मर्यादित राहिला तर 'संस्कृती' हा शब्द जीवनाच्या अंतर्बाह्य अवस्थेसाठी रुढ झाला. 'संस्कृती' या शब्दाचा अर्थ खूप व्यापक आहे. प्रकृती म्हणजे निसर्ग, विकृती म्हणजे प्रकृतीत विघाड होणे अथवा विकार जडणे होय. प्रकृतीत विकार वा विघाड होऊ नये म्हणून प्रकृतीवर करावयाचा संस्कार म्हणजे संस्कृती होय. संस्कृती हा शब्द बहुआयामी असल्याकारणाने त्याची सर्वसमावेशक व्याख्या करणे अवघड आहे. माणूस हा भोवतालच्या निसर्गामध्ये जीवनाच्या अंगताला अनुकूल असे वदल करून म्हणजे त्यावर संस्कार करून आपले जीवन अधिक सुरक्षित, अधिक सुखमय आणि समृद्ध बनवितो. त्याचबरोबर तो स्वतःचे मन, बुद्धी, कल्पकता यांचा अधिक चांगला वापर करतो. त्यांच्यावर संस्कार करतो. या सा-यांना संस्कृती असे म्हणता येईल. इमर्सनच्या शब्दात 'जिच्यामुळे माणसाला जगावे' वाटते, तिला संस्कृती असे म्हणतात. तसेच 'सामाजिक आचार, विचार, श्रद्धा आणि वाङ्मय यामधून जीवनाची जी पध्दती अभिव्यक्त होते तिला संस्कृती असे म्हणतात. प्रा. द. के. केळकर यांनी आपल्या 'संस्कृती संगम' या पुस्तकाच्या प्रस्तावनेत म्हटले आहे की- 'संस्कृती या शब्दाइतका व्यापक अर्थबोधक शब्द स्वचितच अचल. या शब्दाने कोणत्याही समाजाच्या आचार - विचार - व्यवहाराचे, त्याच्या आर्थिक व्यापाराचे, त्याच्या शास्त्र व कला यांच्या उपासनेचे, त्याच्या समाज धारणेने प्रवर्तित केलेल्या धर्म, नीती, व कायदे कानून यांच्या नियमकलापांचे व त्यांच्या जीवन्विषयक तत्त्वज्ञानाचे, अशा सर्व अंगोपांगाचे एकसमवायवेद्येकरून दिग्दर्शन सेते. ..अंतःशुष्टी आणि बाह्यशुष्टी यांनील ज्या ज्या गोष्टीवर त्याने आपल्या मानव्याची संस्कारांमुदा उमटवली. आहे, त्या त्या सर्व गोष्टींचा कलाप म्हणजे त्याची संस्कृती.'

■ **बंजारा संस्कृती :** जगामध्ये हिंदू संस्कृती, ख्रिश्चन संस्कृती, मुस्लिम संस्कृती, बौध्द संस्कृती, शीक संस्कृती, मोहंजोदडो संस्कृती, वॅबीलोन संस्कृती, जपानी संस्कृती, चिनी संस्कृती अशा अनेक संस्कृतींचा उल्लेख करता येईल. अलिकडे यामीण संस्कृती, दलित संस्कृती, आदिवासी संस्कृती, यांच्याप्रमाणेच बंजारा संस्कृतीचा देखिल अभ्यास होताना दिसत आहे. याचे कारण बंजारा समाजाची संस्कृती ही आग्नीवेश्वरी व वैशिष्ट्यपूर्ण अशी आहे. बंजारा समाजाची बोली भाषा, वेषभूषा, केशभूषा, आचार, विचार, सण-उत्सव साजरा करण्याची पध्दत, जीवन जगण्याची पध्दत, रुढी, परंपरा ही वैशिष्ट्यपूर्ण असून अभ्यासकांना अभ्यासासाठी आकर्षित करते. गेल्या दशकात बंजारा समाजाच्या लोकसंस्कृतीवर, लोकगीतावर, लोककथावर, लोकसाहित्यावर, लोककलावर अभ्यास झालेला दिसतो. त्यामध्ये डॉ. श्रीमती सुनंदा पाटील, पांडुरंग कक्केवर पाटील, प्राध्यापक मोतीराम रातोड, डॉ. गणपत

रातोड, डॉ. मालन चव्हाण, डॉ. सौ. रतिमणी पवार, प्राचार्य मधुकर पवार, चक्रियम पाटील, पंचाब घव्हाण, भाई प्रेमसिंग जाधव अशा अनेक लोकांनी संशोधन केलेले आले तरी अनेक अंगांनी संशोधन होणे आवश्यक आहे. त्यात या बोलीभाषेचे व्याकरण, शब्दकोष, संस्कृतीकोष, भाषावैज्ञानिक त्यात वर्णनात्मक, ऐतिहासिक, तौलनिक अभ्यास होणे आवश्यक आहे. रादरचा शोधनिबंध हा बंजारा संस्कृतीच्या काही अंगांवर स्मूलदृष्टिने प्रकाश टाकून काही पैजू उजोडत आणाले हा आहे.

■ **बंजारा समाज व्युत्पत्ती :** व्युत्पत्तीच्या दृष्टिकोनातून विचार करता याविषय या संस्कृत शब्दाला हिंदीत बनज म्हणतात. त्यास 'रा' हे उपपद लावून बनजार हा शब्द झाला असावा. बनज. रा व बंजार. याचा अर्थ व्यापार हा असून धात्याचा व्यापार करणारा तो बंजारा हा अर्थ सर्वमान्य होताना दिसतो. तसेच बंजार या उर्दू शब्दाचा अर्थ पडित जमीन असा होतो. बंजार म्हणजे नापिक जमीन. या जमिनीशी झगडून, संघर्ष करून पीकांस योग्य करणारा असा तो बंजार होय. बंजार, अरी व बंजारी. बनज हा शब्द बंजारी भाषेतही असून त्याचा अर्थ व्यापार असाच आहे. त्याला उपपद प्रत्यय लागून बनजार असा शब्द रुढ झालेला आहे. त्याचा अर्थ व्यापार करणारे. तसेच इर्विन यांनी या शब्दाचा फारशी अर्थ आहे सांगितले. विज या धातूस आर हे प्रत्यय लागून बंजारा हा शब्द झाला असावा. विज चा अर्थ तांडूळ असून तांबळाचा व्यापार करणारे ते बंजारा. बळीराम पाटील यांनी वनात राहणारे-वनजाळे - जंगल जाळणारे यांना वनजाळे, वनजाळे म्हणत असत. 'के' हा प्रत्यय जावून 'के' या शब्दाने त्याची जागा घेतली व बनजारे हा शब्द रुढ झाला. बंजारा शब्दाचा वापर हिंदी साहित्यात विशेषतः कबीर व सुरदास यांनी व्यापारी याच अनुशंगाने घेतलेला आहे. तसेच पंधराव्या शतकातील गुरुनानकाच्या साहित्यातही बंजार हा शब्द व्यवसाय, व्यापार याच अर्थाने वापरला आहे. नजीर अकबरबादी यांनी 'सब ठाट पड रह जायेगा जब लाद चलेगा बंजार.' चातून्ही व्यापार हाच अर्थ सूचित होतो. बंजारा शब्दास लमाण किंवा लमाण असाही पर्यायी शब्द म्हणून वापरला जातो. लवण या संस्कृत शब्दाचा अर्थ मीठ असा होतो. लवणाचा व्यापार करणारे म्हणजे मीठाचा व्यापार करणारे ते लमाण. असा अर्थ थियसन यांनी सांगितला आहे. रामायणातील रामाचे मूल लवाचे वंशज ते लमाण. असाही अर्थ सांगितला जातो. लमाणी हा शब्द नवीवाचक आहे. लुणी नवीतून मीठ आणून त्याचा व्यापार करणारे ते लमाणी. बंजारा या शब्दाला 'गोर' वा 'गोरमाटी' असाही शब्द वापरला जातो. राजस्थानमध्ये याचा अर्थ 'गुरब' वा 'पती' असा घेतला जातो. बंजारा समाजात अशी एक अस्व्यायिका प्रसिध्द आहे की 'माल च्याचे माटी रो आणि गीत गाचे विरासे' याचा अर्थ अन्न ही पतीचे खाते आणि गुणवान मात्र भावाचे करते. माटी हा शब्द 'पती' च्या स्वरूपात दिसतो. लमाण वा लमाण हे शब्द लभ वा धातूशी जवळचे असून त्याचा अर्थ लभ करणारा वा लोभ करणारा असा आहे. वरील सर्व विवेचनावरून बंजारा भाषिक हा व्यापारी होता. स्वतःला कधीही हीन न समजणारा, कष्ट करणारा, मेहनत करणारा, निसर्गाशी झगडा करून जीवन जगणारा असाच आहे.

■ **बंजारा ही संपूर्ण भारतात विखुरलेला समाज असून कोटयावधी लोकसंख्या असलेल्या या समाजाची बोली ही वैशिष्ट्यपूर्ण असून या बंजारा समाजाची लभाणी बोलीला गोरमाटी असेही संबोधले जाते. बंजारा समाजाने आपली बोली ही काळाच्या ओघामध्येही टिकवून सुरक्षित**

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पार्श्वदर्शक :
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शैलकऱ्याचा असूद्ध मधून प्रकटणाऱ्या शैलकऱ्याच्या संदर्भाने

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विद्येचे विना मती गेले, मतीचेस मती गेली.
 मतीविना मती गेली, मतीविना सित्त गेले.
 विनाविना शूद्र खवले, इतके काजर्ल एसा अविषने केले.

महाराष्ट्राच्या शतकातील सुवर्णाचा, चळवळी, प्रयोगशाळक, लेखन प्रमुखाने उच्चवर्गीयच्या समासाद
 हर्ष अशा काळखंडात शूद्र, स्त्री व अतिशूद्र यांच्यासाठी कार्य करणारे, युद्धीयुद्धचर चिन्मर कटांगा
 गावले. होणाऱ्या जातीय अत्याचाराचा जातीच्या व्यक्तीशूद्र शूद्र स्त्रीया यांचे अधिक जगातून जगा जगाणे हे
 जगणे शूद्र लेखनीने जोतीयव भोक्तराव फुले हे लेणे.

अशिक्षान ही आपली ओळख असते, शूद्र, अशिक्षित ही पण माणसेच असतात हे मरणाने जोतीयव
 ही पुरुष्या, कष्टकर्याच्या दुसरीला एक विशिष्ट समाज अज्ञानीभार आहे याची जणूच होनाच जो मरणे, जो
 मरणे प्रवासे समेत आला तो जोतीयव फुले साऱ्या रूपाने.

माणसा फुले याच्या लेखनात जोतीयवी, कामगार, खोदरा-मोठ्या खंदरागाव, पीठ मणारी कामगार,
 स्त्रीया अरया उर्ध्वतर समाजाचे दारुण चित्रण करतायाम फिलेने इतकेच नव्हे तर अनेक अत्याचारांमून
 मरणा, जोखडात सापडलेल्या दिवाची वेद्या, लक्षा त्यांनी उरल्या मांडल्या गाहीत तर त्याचरील उगार कुती
 एतून त्यांनी पूर्ण केलाय शिखाणाचे महत्त्व त्यांनी जाणले. इ.च. चरित्रकासे कामग, अशिक्षिमासे अन्तरम त्यांनी
 लेखनीच्या माध्यमातून समाकालीन समाज उभा केला त्याच्या विकासाचे प्रमाण त्यांनी केले.
 एतूनही मुलीसाठी १८४८ व चिन्मणकरांच्या वाढत्यातील व रस्तीपेठोतील मुलीच्या शाळेची १८५२
 च्या शाखा केली. जो कष्टकारी आहेत हे दिवाकर पाठवी कळगी भुरग्यासाठी करणाय करणाने हे
 शिखाणून वीरस रत्तात. त्यांचा शिक्षण विळकणे या अर्थेपाने त्यांनी १८५५ साली रस्तीच्या शाळेची स्थापना
 ही विवाहा करणयाचा अधिकार आहे हे त्यांनी उल्लेख झाले. आयुष्य फुले समाजमासात विरज
 उरलेच माध्य १८६० साली मुरे केले. आपल्या मरणातून लेखन असाय फुले समाजमासात विरज
 इत फिनिक २४ सप्टेंबर १८७७ रोजी रायचोरीक समाजाची स्थापना केल्या दिनांक १२ एप्रिल १८७३ रोजी
 हे वेद कथापुस्तक समाजाचा निवारा व वकायुळ समारंभ घडवून आणला.

जोतीयव फुले यांनी सन १८५५ मध्ये 'नूतनीयत' नासकाने लेखन केले व त्यानंतर सन १८०७ साली
 एतून 'महाराष्ट्र' नासकाने लेखन केले. दिनांक १० जुलै १८८३ रोजी 'सर्वजनिक संघर्षा' या
 नासकाने लेखन केले. दिनांक १ एप्रिल १८८९ केले त्यांनी आपल्या लेखनात समाकालीन, समाज, सामाजिक
 अर्थशास्त्र व इतर विविध समस्या व त्यांनी करणाय करणया मरणाच्या शाखातल्या शाखातून शैलकऱ्याच्या
 लेखन मरणातून निघून पंतकऱ्याच्या असाय यातून फेकतून शिखाण असाय गाहीत. त्यांनी उल्लेख रोजी
 लेखन ताम माणसा फुलेनी केले असाय पणिका एतून हीलया कष्टकारी समाज अर्थशास्त्र लेखन. 'या
 लेखनात एतून पाणवत अशी जी मरणाची, शाखातून जातीची ओढी राहतात हेच आपण मरण अर्थशास्त्राचा
 हेच समाज कष्टकारी समाज मान आणिले! अर्थशास्त्रात!

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या अंकाचे सर्व अधिकार प्रकाशकांनी राखून ठेवले आहेत. प्रकाशक, संपादक यांच्या लेखी पूर्वमरण
 शिखाण जातीय वेदांचे पूर्वमरण करताना येणार नाही. या शिखाणकारील वेदांचे पूर्वमरण शिखाण
 प्रांतांनी प्रते ही त्या संवेदित वेदांच्या वेदांच्या वेदांच्या मते आहेत. त्यांच्यांनी संपादक, प्रकाशक मते
 अमनीयचे असे नाही. वेदांच्या मूल स्वातंत्र्य हेदांचे पूर्वमरण (काही राईट्स मरणातील) अर्थशास्त्रातून
 मरणातून मरणाची आहे.

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मदीं पातळी, चालविकांग पोष, देव, नये, आत्मसम समालाच्या, विद्यापारमार्तो, संवेदनाच्या, जेव्हा आत्मज्ञान
 साकारते आणिच संवेदन समजनातील ज्ञानका अयसा, पादोक्तसोमार्तो संवेदना ठेवण्यात इतरही संवेदनाच्या
 वैयक्तिक बीजनागिरे सुसंपत्ती सोपातच तांच्या योगीया विवेकस आका पाहिले हेच सांगितले. मनीं
 सुपरस्यमातो त्यानी संतोषिपयक अर्थशास्त्रिक जय येककन्याना मिळाले पाहिले त्या विमयी इत, इतर
 वेळोवेळी, जनावापमार्तो वात, पाणी, हिवाच्या, संपासासो फिकावर व्हारे बसविले जावेत अशा सामाजिक तपस
 त्यानी सुचविले. योग्य प्रमूल्या प्रत्येकाच्या मिळाले पाहिले हे सापसारे भोलासा सुले व त्याचे लेखन योग्य
 शैलीकन्याचा अंतवट सा अंग वड प्रथीम गुणवत्तेच्या दृष्टिने ही महत्त्वाचा टाळा, झाल्या सुले नाच्या
 वेळोणीवेळा म. इ. माडजोकरस म्हेतास 'त्याच्या लेखणीतील साहित्य गुणांचा चमक, शिवावी नारायण
 गोवाड आणि गोपन्याचा अमूट सा देत पुस्तकात दाखिस पाठने . . .

इहवम समालाला आपले विचार कळवत यासाठी त्यांनी बोलीभाषेचा चापर केला अर्थात भला,
 अर्थपूर्ण अशी तो आहे स्वच्छ, स्पष्ट, अर्थपूर्ण आणि निरिगतासी लेखन फुल्यांच्या महत्त्वाचे वेगवेगळे हेतू
 शैली व्यवस्थेपुन ते हिरासणपयत्तसो एक नवी रचना अये इशजानी स्थापित केला आणि या नव
 काव्यम अल्लोडो, कोवापल्ले फलतात . . . इशजानी ज्या अकव्या स्टड केव्या त्यांच्या दुर्गासोदिस नव
 आपण आजही पुढे बाळूच अकव्या अडित झुणजे नागोल पानावतन पुढे असाच प्रसार असल्याचे दिसते. जे
 चातो इतर वापकातो तो परिचितोव्या रचकाने घडणारा आहे हे सुस्पष्टकर, मोजनापुस्तक आन्वी परिवर्तनाचे
 इतरते सिपामार्तो अजव अचमनी करित याही हे वास्तव . . .

ऐककन्याचा अमूट 'हे प्रसंगिक आहे, महत्त्वा फुल्यांनी शेतकन्याच्या शोणाचे साद बाळकने
 निवेदन निखलेणा सा प्रेमात केले आहे. या दारा महात्मा फुल्यांच्या व्यक्तिमत्त्वाची ठळक अर्थपूर्ण
 सुसंपन्नका, सिद्धाशीलता, बुद्धिवादी दृष्टिकोन, विचारचो प्रखरता व अर्थकारणाचे मूळ शोषणारी पुढे जात
 नवर वैशिष्ट्याचा अनुभव त्याची लेखणीतून येते.

संदर्भ ग्रंथसूची :

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