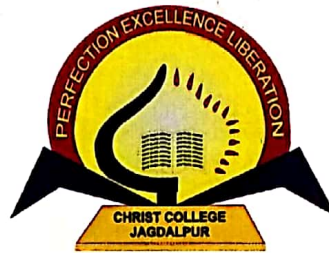


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Ethanopharmacological Significance of Momordica sp. in India

Payal Mishra¹, Tuneer Khelkar², Nurul Haque³

Abstract

Cucurbitaceae family is also known as gourd or pumpkin family. *Momordica* is one of the 95 genera of it. The term *Momordica* is derived from the Latin word for "bite". The pulp around the seeds of this squash species is toxic. To make this review search of literature was being done using Google Scholar. The keyword were *Cucurbitaceae* + Medicine + India for the year 2017 in the mid of May month. The result indicates that in the current year researchers are focusing mainly on three species of *Momordica* i.e. *M. charantia* L. (Bitter Gourd), *M. dioica* Roxb. ex Wild. (Spiny Gourd) and *M. foetida* Schumacher. (African Wild Cucumber). *M. charantia* L. is the most studied plant species among all the three. Ethanopharmacologically fruit is the most important part of this plant. There is a great possibility in *M. charantia* L. in treating diabetes.

Keyword: *Momordica*, *Cucurbitaceae*, Diabetes, India

Introduction

Cucurbitaceae is the largest family of the order *Cucurbitales* with 95 genera and 965 species (Christenhusz & Byng, 2016). *Cucurbitaceae* family is also known as gourd or pumpkin family. Species in the *Cucurbitaceae* are annual or perennial vines that either trail along the ground or climb upwards using tendrils. The leaves are arranged alternately and are either undivided or lobed, or divided into 3 or more leaflets. The lobes or leaflets radiate outward from a central point, as do the veins, and there is a tendril at the base of the leaf stalk. The flowers grow singly or in arrays of multiple flowers, are actinomorphic (radially symmetrical), and may be

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white, yellow, or greenish. The flowers are unisexual, and plants may have pollen-bearing or ovule-bearing flowers, or both. The sepals and petals are fused together at the base with five lobes each, and attach above the ovary (i.e., the ovary is inferior). Pollen-bearing flowers have five stamens, which are often fused together. In the ovule-bearing flowers, the styles are united and capped by a thick stigma. The fruit is usually a fleshy berry with a firm skin (a pepo). However, in one wild species a capsule opens by apical pores. In some species, the fruit may be covered with small prickles.

The genus name, *Momordica*, was derived from the Latin word for "bite". Although this might indicate to the biting flavour of the fruit, it more likely illustrates the toothy texture of the seeds. The pulp around the seeds of this squash species is toxic. Habitat is terrestrial. Petals in the flower are white or yellow in colour. The leaves are simple (i.e., lobed or unlobed but not separated into leaflets) alternate. The edge of the leaf blade has lobes, or it has both teeth and lobes. The flowers are radially symmetrical. There are five petals, sepals, or tepals in the flower. The petals or the sepals are fused into a cup or tube. Stamen number 1, 2 or 3. The fruit is fleshy, about 100–200 mm long.

Method

Search of literature was being done on Google Scholar using the keyword Cucurbitaceae + Medicine + India for the year 2017 in the mid of May month. All the freely available PDF files were downloaded along with the citations and being saved using a citation manager software EndNote X7.2.1 (Bld 8311). All review article and any research article, which were from outside India, were filtered. All the selected articles were individually searched for the keyword *Momordica*. Then results were tabulated in a review table under the heads: State, Vernacular name, Part used, Method of study, Importance and References. Result is being analysed to evaluate the current trends of researches on ethanopharmacological significance of *Momordica* sp. in India.

Review table

Momordicacharantia L. (Bitter Gourd)

State	Vernacular name	Part used	Method of study	Importance	References
Madhya Pradesh	<i>Karela</i>	Leaves	In vitro	Antimutagenic activity	(Birla et al., 2017)
Tamil Nadu	<i>Kattupagal</i>	Fruit	People survey	Fruit juice were fried in groundnut oil taken daily to kill the intestinal worms.	(Deepak Kumar et al., 2017)
	<i>Pagarkkai</i>			Fruit juice is taken to treat diabetics.	(Senthilkumar & Vadivel, 2017)
	<i>Pakrkai</i>	Leaves		Cure kidney stone	(Ganesan & Kumaresan, 2017)
Gujrat	<i>karelu</i>	Fruit	In vitro	Anti-Diabetic	(Nagja et al., 2017)
		Leaves	People survey	Leaf juice is taken in empty stomach for diabetes daily and fruit in meal for one month. Dried fruits powder is given orally on diabetes. Fresh juice of unripe fruits is given orally in piles.	(Patel & Patel, 2017)
NA	NA	Fruit	In vitro	Neuroprotective	(Pathakota et al., 2017)
Karnataka	<i>Haagalakaay</i>			Type 2 diabetes mellitus	(Selvakumar et al., 2017)
			People survey	Eat raw fruit daily one in diabetes and typhoid	(Divya et al., 2017)
Himachal Pradesh	<i>Karela</i>			Anti-diabetic	(Gupta et al., 2017)

Note: NA – Not Available

Momordica dioica Roxb. ex Wild (Spiny Gourd)

State	Vernacular name	Part used	Method of study	Importance	References
Madhya Pradesh	Janglikarela, Kakora	Root	People survey	Fever, piles	(Singhal et al., 2017)
Himachal Pradesh	Kakora	Fruits	In vitro	Fruits used as vegetable	(Chand et al., 2017)
Haryana	Kankoda			Antioxidant	(Nehra & Deen, 2017)
Punjab	Kakaura, kirara, dharkarela			Antidiabetic	(Kamboj, 2017)

Momordica foetida Schumacher (African Wild Cucumber)

State	Vernacular name	Part used	Method of study	Importance	References
Rajasthan	Khakoda	Leaf and fruit	Field survey	Cure Malaria, Snakebite	(Kala et al., 2017)

Result

Total 335 results were obtained. Only 213 research articles were available free to download. On doing a secondary search using search feature of EndNote, 174 papers were filtered for the keyword Cucurbitaceae + Medicine + India. After individually searching 174 papers for the keyword '*Momordica*' finally, 15 papers were selected for preparing this review. From the review table it is evident that in the current year researchers are focusing mainly on three species of *Momordica* i.e. *M. charantia* L. (Bitter Gourd), *M. dioica* Roxb. ex Wild. (Spiny Gourd) and *M. foetida* Schumacher. (African Wild Cucumber). Researchers from eight states of India have documented the significance of this species (Figure 1). The most important part of the plant is fruit and its leaves. Only in one study in Madhya Pradesh, Datia and Sheopurkalan districts, tribal are using roots of *M. dioica* Roxb. ex Wild. in treating fever and piles. Any one of the three *Momordica* sp. is being used in treatment in 11 diseases (Figure 2). It is most prominently being used in the treatment of diabetes. Other than this, it is also used to cure malaria, antioxidant, intestinal worm, kidney stone, neuroprotective, piles, snakebite and typhoid. Three methods of study were being adopted for the documentation viz. field survey, people survey and in vitro experiments. Eight and six studies conducted people survey and in vitro experiments respectively. Only one study used field survey method.

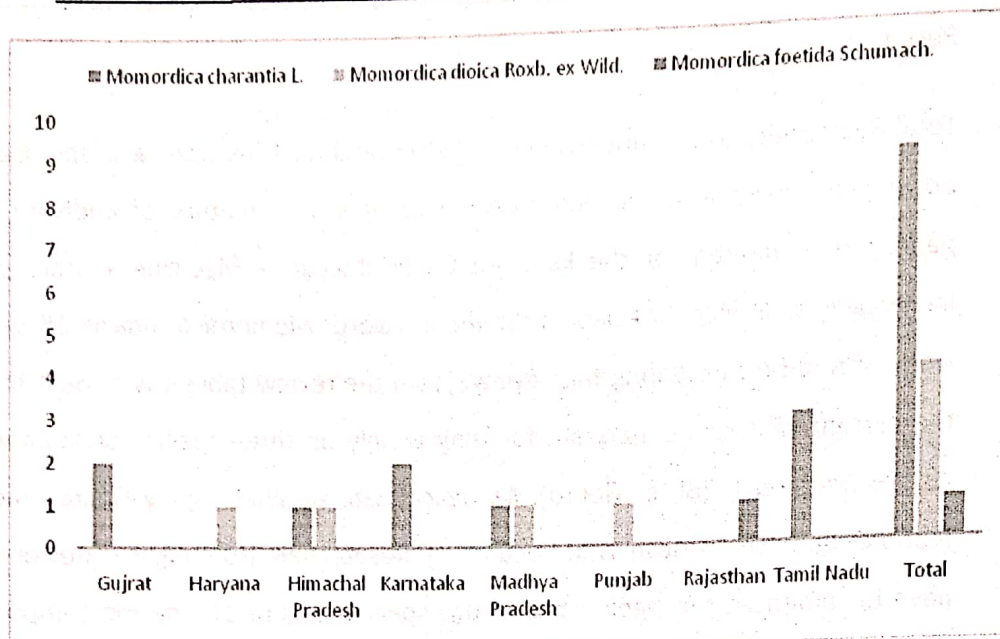


Figure 1 Different species vs studies

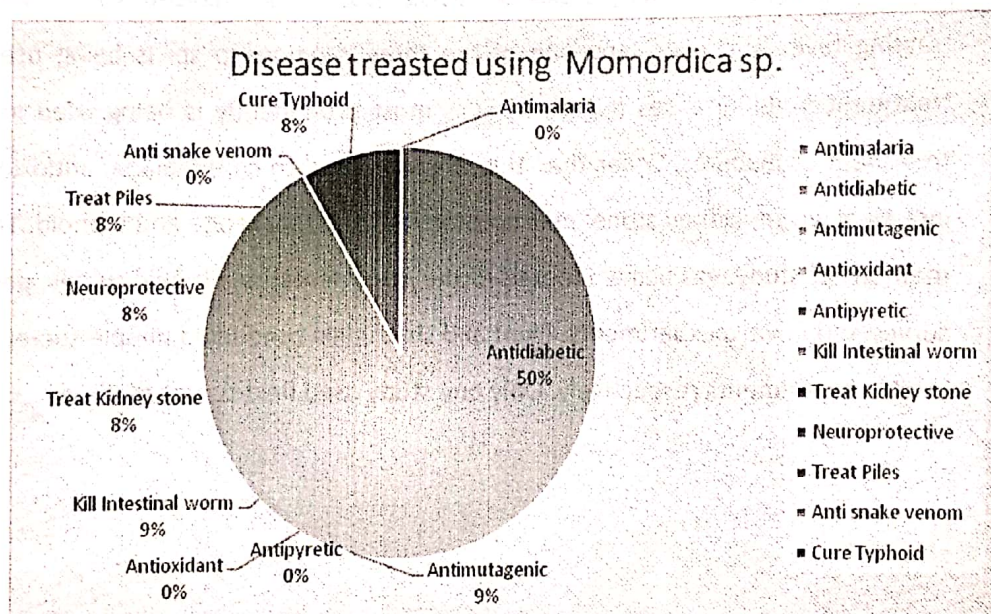


Figure 2 Disease treated using Momordica sp.

Conclusion

Momordica charantia L. is the most studied plant species among all the three. Ethanopharmacologically fruit is the most important part of this plant. Southern part of India has documented most of the work. There is a great

possibility in *M. charantia* L. in treating diabetes. This can be achieved by more robust study on it.

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Plant Species Diversity in Homegardens of Jagdalpur City

Nisha Gautam¹

Abstract

Homegardens are high energy subsidy, man managed ecosystem. Home gardens are traditional agroforestry systems characterized by the complexity of their structure and multiple functions. Homegarden also defined as land use system involving deliberate management of multipurpose trees and shrubs in intimate association with annual and perennial plants. The study was carried out in Jagdalpur city. Techniques used were homegarden tour complete plant inventory, semi structured interviews, free listing, priority ranking, and preference ranking. In 30 homegardens of Jagdalpur city 239 plant species were found from 84 families. The plant species are a great value for medicinal, ornamental, fruit, food, vegetable and religious purposes. The present study indicates that high useful plant species diversity documented in the homegardens of jagdalpur city was associated with diversity of ethnicity with different culture, custom, and belief.

Key words:Homegarden, Jagdalpur, Jaccard's coefficient, Sorensen coefficient, Binary similarity coefficient.

Introduction

Homegardens are high energy subsidy, man managed ecosystem. Home gardens are traditional agroforestry systems characterized by the complexity of their structure and multiple functions. Homegardens can be defined as 'land use system involving deliberate management of multipurpose trees shrubs in intimate association with annual and perennial agricultural crops and invariably livestock within the compounds of individual houses, the whole tree-crop animal unit being intensively managed by family labour'. Homegarden also defined as land use system involving deliberate management of multipurpose trees and shrubs in

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intimate association with annual and perennial plants. They are the important places for the ex situ conservation of biodiversity as well as places for introduction and maintenance of many exotic plants

Homegardens of two different localities of Jagdalpur have been studied. Data have been collected to understand the no. of species of various families present in these localities. There Jaccard's and Sorensen's similarity coefficient and dissimilarity coefficient have been calculated to measure the similarity by Binary similarity coefficient.

Material and Method

Study area

The study was conducted in homegardens of Jagdalpur, Bastar, C.G. Jagdalpur is the headquarter of Bastar district as well as of Bastar division. This is situated in 19.07° north latitude & 82.03° east longitude. Homegardens are important sites for *in situ* on farm conservation, the role of the people in the management and preservation of biodiversity in their traditional homegardening systems was examined. The homegarden were in the size range of 28.90sq m to 187.4sq m with an average of 79.98sq m. The area experiences a climate having a mean annual rainfall of 1090mm. The maximum temperature of summer rarely goes above 42°C, winter is cool with the lowest temperature going down to about 7°C in the month of December.

Data collection

The study was carried out in Jagdalpur city. Data was collected through personal visit of homegardens with semi structured interviews, free listing, priority ranking, and preference ranking with complete listing of plants. Ethno botanical techniques were used to collect data on knowledge and management of homegarden plants by people.

Data analysis

Free listing was used by asking participants to name all the useful plants found in their homegardens and uses of each plant, if any. Jaccard's similarity coefficient (JSC) and Sorensen's Similarity coefficient and binary similarity coefficients were estimated for comparing homegardens with respect to number of species in study areas.

Jaccard's index:

$$S_j = \frac{a}{a+b+c}$$

Where S_j = Jaccard's similarity coefficient

a,b,c = as defined above in presence/absence matrix

The index can be modified to a coefficient of dissimilarity by taking its inverse:

Jaccard's dissimilarity coefficient = $1 - S_j$

Sorensen's index:

$$S_s = \frac{2a}{2a+b+c}$$

Where S_s = Sorensen's similarity coefficient

The index can be modified to a coefficient of dissimilarity by taking its inverse:

Sorensen's dissimilarity coefficient = $1 - S_s$

Binary Similarity Coefficients

The basic data for calculating binary (or association) coefficient is 2x2 table

Sample A			
Sample B		No. of species present	No. of species Absent
	No. of species present	a	b
	No. of species Absent	c	d

Where

a = No. of species in sample A and sample B (joint occurrences)

b = No. of species in sample B but not in sample A

c = No. of species in sample A but not in sample B

d = No. of species absent in both samples (zero-zero matches)

The two of the most often used similarity coefficients for binary data are Jaccard's index and Sorensen's index

Result

In 30 homegardens of Jagdalpur city 239 plant species were found from 84 families. 16 homegardens from center of the city were studied while 14 homegardens from around the city were studied. Among these 11 gardens were on the terrace of the home while 19 were on the ground. Between the gardens in the centre of the city and around the city Jaccard's similarity coefficient (JSC) was 0.377593 and Sorensen's Similarity coefficient was found to be 0.548193. Between the gardens on terrace and ground, Jaccard's similarity coefficient (JSC) was 0.385593 and Sorensen's Similarity coefficient was found to be 0.556575. Maximum of 13 plant species were recorded for Asteraceae family and 12 plant species of Euphorbiaceae family, while some of the plants remained unidentified. Of the recorded plant species about 13.87% were trees, 56.93% were shrub and 29.18% were herbs out of which 82.77% were cultivated, 14.35% were wild while 6.0% were cultivated as well as wild, both. 49.6% were ornamental, flowering plants, 18.4% were wild plants, 10.4% were vegetable plants, 8.6% were fruit plants, 2.3% were religious plants while 8.09% of the plants, not belonging to any of the above categories, were categorized as miscellaneous plants.

Jaccard's similarity coefficient between the gardens in the center of city and around the city

$$\text{Jaccard's index} = S_j = \frac{91}{91+74+76} = 0.377593$$

$$\text{Jaccard's dissimilarity coefficient} = 1 - S_j = 0.622407$$

Jaccard's similarity coefficient between the gardens in the terrace and ground

$$\text{Jaccard's index} = S_j = \frac{91}{91+74+76} = 0.385593$$

$$\text{Jaccard's dissimilarity coefficient} = 1 - S_j = 0.614407$$

Sorensen's similarity coefficient between the gardens in the center of city and around the city

$$\text{Sorensen's index} = S_s = \frac{2 \times 91}{2 \times 91 + 34 + 111} = 0.548193$$

$$\text{Sorensen's dissimilarity coefficient} = 1 - S_s = 0.451807$$

Sorensen's similarity coefficient between the gardens in the terrace and ground

$$\text{Sorensen's index} = S_s = \frac{2 \times 91}{2 \times 91 + 34 + 111} = 0.556575$$

$$\text{Sorensen's dissimilarity coefficient} = 1 - S_s = 0.443425$$

Conclusion

Many useful plant species were found in the homegardens of the study area. The plant species are a great value for medicinal, ornamental, fruit, food, vegetable and religious purposes. The present study indicates that there is high diversity of useful plant species in the homegardens of jagdalpurcity. The no. of flowering and ornamental plant species diversity in the study area is higher. This shows that homegardeners gave more priority to flowering and ornamental plant cultivation for aesthetic value. The present study indicates that there is a knowledge gap in the cultivation, conservation and management of useful plant species in the homegardeners. Therefore, incorporating indigenous knowledge with scientific management and conservation of useful plant species, creating awareness among homegardeners; will promote gardening in Jagdalpur.

List of families of plants and no. of plant species found in the study area:

S..no.	FAMILY	No. of Sp.
1	Acanthaceae	4
2	Alismataceae	1

S..no.	FAMILY	No. of Sp.
43	Geraniaceae	1
44	Iridaceae	1

3	Amaranthaceae	4
4	Amaryllidaceae	3
5	Anacardaceae	2
6	Annonaceae	3
7	Apiaceae	1
8	Apocynaceae	6
9	Araceae	9
10	Araliaceae	1
11	Araucariaceae	1
12	Arecaceae	2
13	Asparagaceae	4
14	Asphodelaceae	1
15	Asteraceae	13
16	Balsaminaceae	1
17	Begoniaceae	1
18	Bombaceae	1
19	Brassicaceae	1
20	Bromeliaceae	1
21	Cactaceae	2
22	Cannaceae	1
23	Caricaceae	1
24	Caryophyllaceae	1
25	Cassalpinaeae	1
26	Chenopodiaceae	1
27	Combretaceae	1
28	Commelinales	1
29	Compositae	2
30	Convolvulaceae	4
31	Crassulaceae	2
32	Cucurbitaceae	3
33	Cupressaceae	2
34	Cyatheaceae	1
35	Cycadaceae	2
36	Cyperaceae	7

45	Labiatae	6
46	Lauraceae	1
47	Fabaceae	2
48	Lytharaceae	1
49	Liliaceae	5
50	Lomariopsidaceae	1
51	Malvaceae	2
52	Meliaceae	1
53	Moraceae	6
54	Moringaceae	1
55	Musaceae	1
56	Myrtaceae	3
57	Nyctaginaceae	2
58	Oleaceae	5
59	Orchidaceae	2
60	Oxalidaceae	1
61	Palmaceae	1
62	Papaveraceae	1
63	Passifloraceae	1
64	Pinaceae	1
65	Piperaceae	1
66	Poaceae	10
67	Proteaceae	1
68	Protolacaceae	1
69	Pteridaceae	1
70	Punicaceae	1
71	Rosaceae	1
72	Rubiaceae	6
73	Rutaceae	5
74	Sapotaceae	1
75	Scrophlariaceae	1
76	Selaginellaceae	1
77	Solanaceae	4
78	Tropaeolaceae	1

37	Dioscoreaceae	1
38	Dracaenaceae	2
39	Dryopteridaceae	1
40	Eupatorieae	1
41	Euphorbiaceae	12
42	Fabaceae	5

79	Turneraceae	1
80	Umbelliferae	2
81	Urticaceae	1
82	Verbenaceae	4
83	Vitaceae	1
84	Zingiberaceae	4

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**New records of the species *Lathrobium triste* Cameron and
Oedichirus dimidiatus Eppelsheim (Paederinae: Staphylinidae: Coleoptera)
from Himachal Pradesh, India**

Abha Sar¹ and G.P. Mandal²

Abstract

*The family Staphylinidae commonly known as rove beetles belongs to the suborder Polyphaga of the order Coleoptera. The present paper deals with two species namely *Lathrobium triste* Cameron and *Oedichirus dimidiatus* Eppelsheim of the subfamily Paederinae of the family Staphylinidae. The collection was made during the year 2011 and 2014 from survey of different districts of Himachal Pradesh. The detailed morphological study of two species was made under the Scanning electron microscope (SEM).*

Key words : Coleoptera, Rove beetles, Himachal Pradesh.

Introduction

The Staphylinidae is one of the largest families of Coleoptera distributed throughout the world. About 30,000 species are known from the world and more than 3000 species have been recorded so far from India. The Subfamily Paederinae are usually found in the habitat like damp/ rotten vegetables, debris, trunk of decaying trees, damp leaves, amongst fallen leaves, in the paddy fields, wild bushes, on the sandy river bed, under stones, near streams etc.

Major workers who dealt the group are Motschulsky (1858), Kraatz (1859), Fauvel (1895), Bernhauer (1915), etc. prior to Cameron work on the fauna of British series (1930-1939).

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Present study on the collections of Himachal Pradesh, Kangravally by Dr. Animesh Ball and party. The locality was Gaggal in Kangravally, dist. Kangra, alt. 650 m. The Kangravally is part of the outer Himalaya which is known as the Shiwalik Hills. Present study deals with two species under the genus *Lathrobium* Cameron and *Odichirus* Eppelsheim was identified. These two species recorded for the first time from Himachal Pradesh.

Methodology

The specimens were mainly collected by hand picking, dusting and light trapping method as well as were also used light trap during night. The collected materials are sorted out, set and pinned, studied and identified with the help of light microscope and Scanning electron microscope (SEM). The identification is mainly based on the differences in the morphological characters and the structures of the male genitalia. All the identified collections are deposited in National Zoological Collection of Zoological Survey of India, Kolkata.

Observations

Systematic account

Order- Coleoptera

Family- Staphylinidae

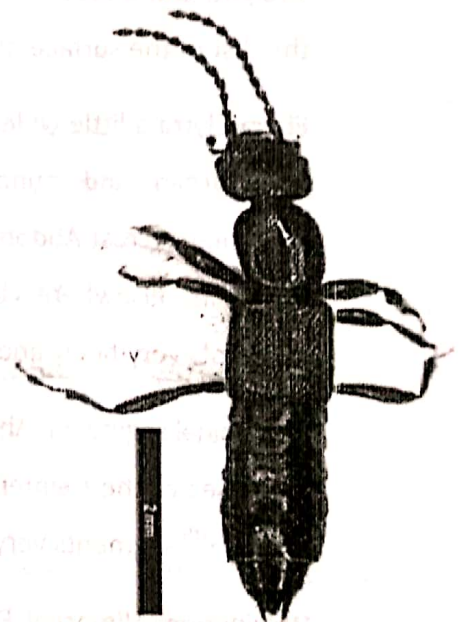
Sub family- Paederinae

Tribe- Paederini

1924. *Lathrobium triste* Cameron, *Trans. Ent. Soc. London.*, :193.

1931. *Lathrobium triste* Cameron, *The Fauna of British India, Including Ceylon and Burma* (Coleoptera: Staphylinidae), 2:199-201

1. *Lathrobium triste* Cameron, 1924
(Figure 1)



Material examined: India: Himachal Pradesh: Kangravally, Gaggal, 27.III.2011, coll. Animesh Bal and party, 2 ex.

Diagnostic character: Insect black, shining; antennae and palpi brownish rusty red, the femora black, tibiae and tarsi brown. Head orbicular, broad same as the thorax, eyes moderate, impunctate, small space. Antennae with the 2nd joint shorter than 3rd joint, the 4th to 10th joint oval, narrowed at the end.

Head: Head orbicular, broad same as the thorax, eyes moderate, impunctate, small space on the vertex, very closely punctured at the sides and the base, less closely punctured on the disc and in front the rest of the surface moderately coarsely punctured, a few black setae on the sides. Broad neck. Antennae with the 2nd joint shorter than 3rd joint, the 4th to 10th joint oval, narrowed at the

Thorax: Thorax longer than broad, anterior angles widest and rounded, sides straight, and a little narrowed behind, median line smooth throughout the thorax, the rest of the surface of thorax moderately coarsely and closely punctured.

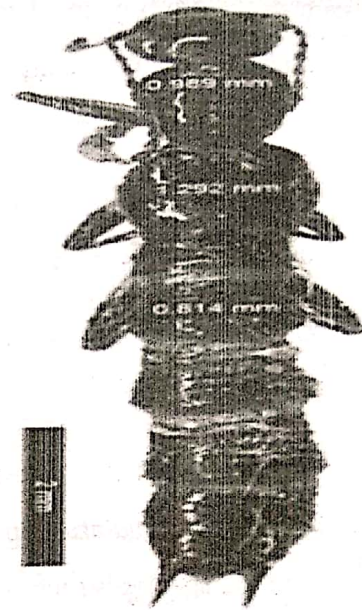
Elytra: Elytra a little wider than the thorax and long same as the thorax, and longer than broad and punctured coarsely, closely, subserially. The margin with longitudinal crest. Abdomen finely, moderately closely punctured at the base of the segments, elsewhere closely and much more finely punctured. The 5th and 6th segments very finely and less closely punctured.

Abdominal segments: Abdomen moderately finely, moderately closely punctured at the bases of the segments, closely and much more finely punctured elsewhere, the 5th and 6th segments very finely and less closely punctured.

Distribution: Himachal Pradesh (Kangravally, Gaggal), West Bengal (Darjiling dist), Uttarakhand.

Remarks: The detailed morphological study of the species *Lathrobium triste* Cameron was made under Scanning Electron Microscope and the species is first time recorded from Himachal Pradesh.

2. *dichirusdimidiatus* Eppelsheim, 1890
1931. *Odichirusdimidiatus* Eppelsheim, *The
Fauna of British India, including Ceylon
and Burma* (Coleoptera: Staphylinidae),
2:27-28



Material examined: India: Himachal Pradesh: Kangra, Shahpur,
14.vii.2014, Alt. 743m, Lat and long. 32.2 12. 91 N 76.1 82 05 E, coll. V.D. Hegde &
Party, 2 ex.

Diagnostic character: The species is red, the elytra is black but the posterior border is red. The last three abdominal segments black. Antennae testaceous, the 3rd to 5th joints infusate; legs testaceous, the apex of the anterior and intermediate and the distal half of the posterior femora black. Length 8mm.

Head: Head with eyes a little broader than the thorax, transversely suborbicular, the disc with seven or eight punctures more or less arranged in a circle, behind the eyes and before the base with a few minute punctures setose.

Thorax: Thorax longer than broad, widest in front and narrowed behind, the disc on either side with a row of seven punctures, of which the anterior two pairs are smaller and nearer each other and the middle line than the posterior series; the sides each with three larger punctures, setose.

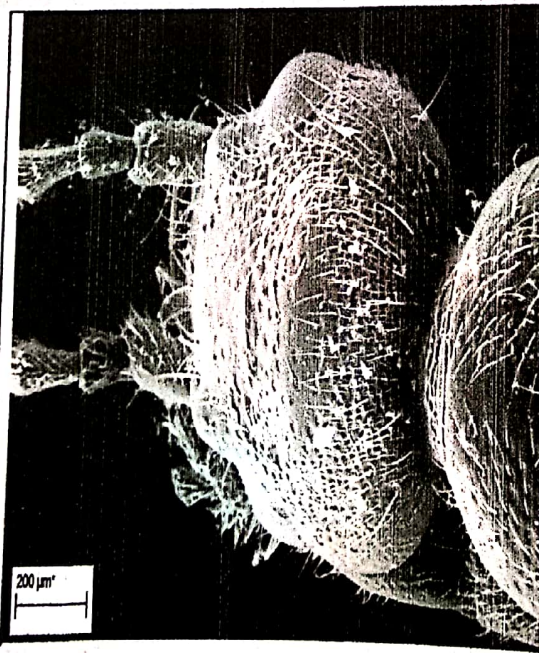
Elytra: Elytra broader than and about as long as the thorax, the sides rounded, the apical margin broadly red, coarsely and not closely punctured, posteriorly impunctate, setose.

Abdominal segments: Abdomen with the individual segments closely triserially punctured, strongly setose.

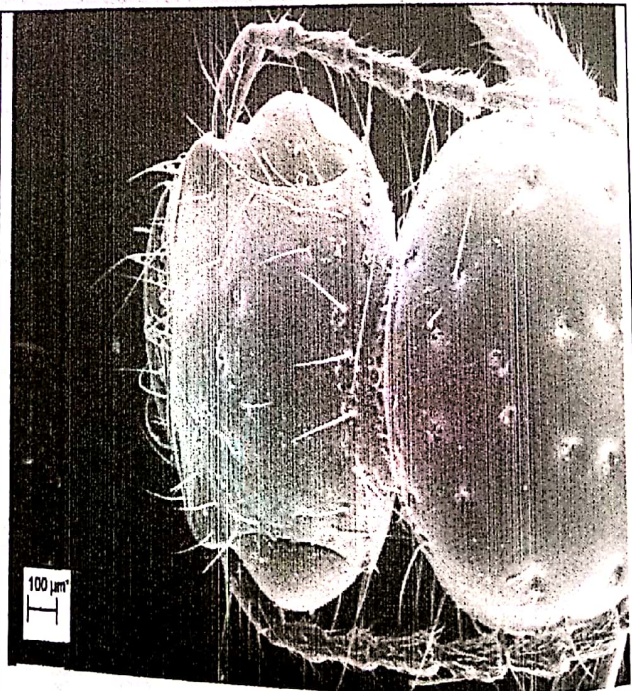
Distribution: India: Himachal Pradesh (Kangra), Meghalaya, Madhya Pradesh, Tamil Nadu and Uttar Pradesh.

Remarks: The detailed morphological study of the species *Oedichirus dimidiatus* Eppelsheim was made under Scanning Electron Microscope and the species is recorded for the first time from Kangra, Himachal Pradesh.

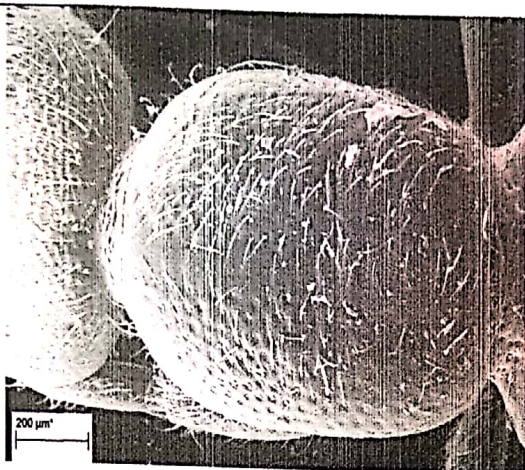
Plate Scanning Electron Micrographs of the species *Lathrobium triste* Cameron and *Oedichirus dimidiatus* Eppelsheim



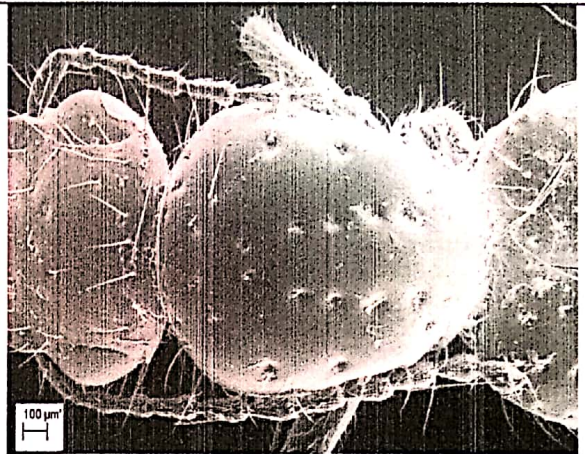
Head of *Lathrobium triste*



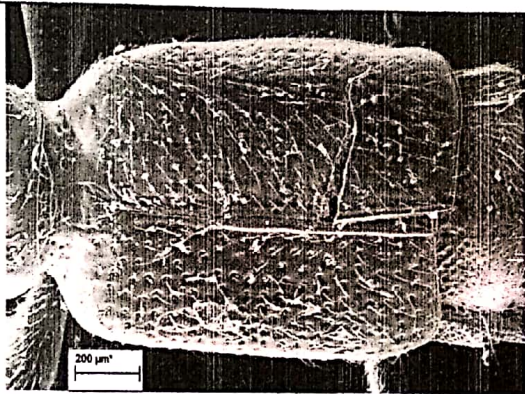
Head of *Oedichirus dimidiatus*



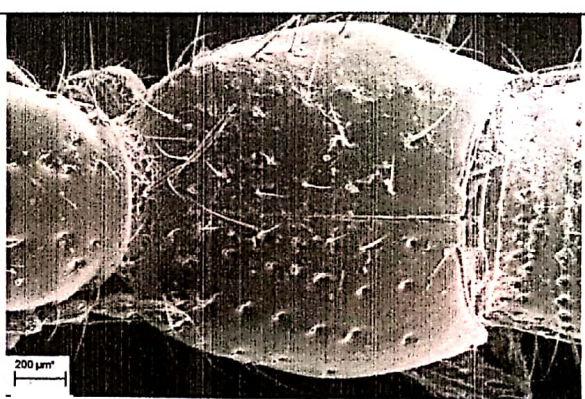
Thorax of *Lathrobium triste*



Thorax of *Oedichirusdimidiatus*



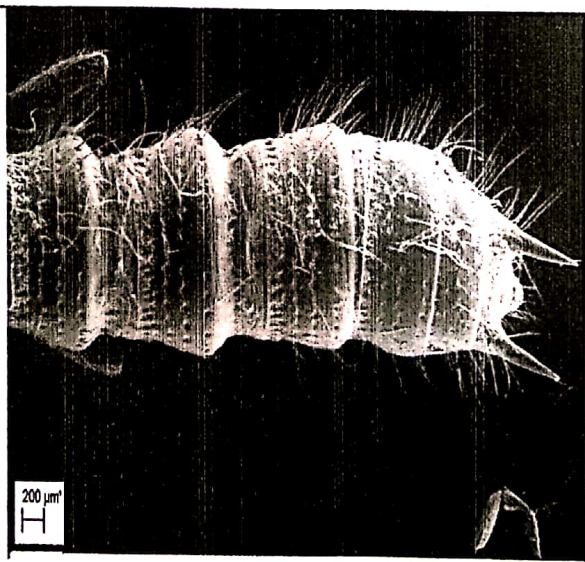
Elytra of *Lathrobium triste*



Elytra of *Oedichirusdimidiatus*



Abdomen of *Lathrobium triste*



Abdomen of *Oedichirusdimidiatus*

Acknowledgement

The authors are grateful to the Director, Zoological Survey of India, for providing laboratory facilities during this work. Authors also thankful to the Officer-in Charge, Entomology Division for his valuable suggestions and Officer-in Charge, Coleoptera section for his valuable advices and thankful to all staff members of Coleoptera Section for their co- operation and help to complete the work.

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A Study on the System of Kinder Garten Education in Bavaria State, Germany

Dr. Rosamma Jacob¹

Introduction

A kindergarten (German pronunciation: ['kɪndɐˌɡaːtn]), literally children's garden combining the German word for children (Kinder) and garden (garten) is a preschool educational approach traditionally based on playing, singing, practical activities such as drawing, and social interaction as part of the transition from home to school. The first such institutions were created in the late eighteenth century in Bavaria and Strasbourg to serve children both of whose parents worked out of the home.

The term kindergarten was coined by Friedrich Froebel, whose approach greatly influenced early-years education around the world. The term is used in many countries to describe a variety of educational institutions for children ranging from two to seven years of age, based on a variety of teaching methods.

Aims and Objectives

1. To study the system of Kinder Garten in Bavaria.
2. To study whether there is any difference in the system of Kinder Garten in the state of Bavaria than India.

Materials and Method

The researcher has visited various Kinder Gartens in the state of Bavaria and had a face to face interview with the Rectorines (Head of the Kinder Garten) and the staff members. Apart from this the researcher had collected data on the same through a questionnaire which was filled by the staff members.

What is the age limit to get enrolled in Kindergarten?

Children between the age of 3 and 6 attend Kindergärten, which are not a part of the school system.

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How do the children get accustomed with the new environment in the Kindergarten?

The parents are allowed to visit the kindergarten along with the child and to spend sometime in the actual class room situation prior to the admission to kindergarten. The environment provided to the child is very conducive and delight.

How do the teachers distribute the children in to different classes/ sections?

Based on the total strength, the children are divided in to different groups. As it is a child centered education children have complete freedom to join any group according to their fascination towards the teacher or the classmates.

What is the teacher – student ratio in a kindergarten?

In Germany maximum 25 children can be enrolled in a group /classroom. There will be a main qualified teacher supported by a qualified assistant teacher and a helper. Apart from these, there can be one or two teacher trainees who have come from different training schools to get experience in this field as a part of their practicum.

What is the the medium of instruction?

The medium of instruction is mothertongue (German).

How many hours a day a child retain in the institution?

Children start coming to the school at 7.30 a.m and disperse at 12.00 noon. The duration can be extended up to 5 pm as per the demand of their parents.

What is the daily routine in a kindergarten?

The arrival of the children starts at 7.30a.m. and they go to their own respective classes. The teacher greets the children and the children greet each other. Thus the day begins with greeting each other. The teacher tells to the children about name of that particular day and the speciality of the day if anything falls followed by the date and the month. Each class room has got sufficient furniture and play things. Children play together in the group. They sing, dance and get engaged in different group activities. They will have breakfast which brought from their own home together with the concerned teachers in their respective classes. 5-6 children sit

around a table and have their breakfast. All children are trained from their home how to eat, so without much difficulty they manage themselves to eat. The teachers also take care and guide the children to eat if it is needed. Thereafter the children clean up the table together with their teachers. Now children are free to play, to draw, or to construct anything with the provided materials. The teachers observe them, sit with them and guide them. The classroom atmosphere is very congenial and students move in the classroom freely. There are no strict rules and regulations or punishment on children. They fly in the classroom like butterflies. During this time if any child wishes to learn reading, writing or arithmetic can be done with or without the help of a teacher. Then the children will have lunch which is prepared in the kindergarten kitchen by an appointed person. After lunch, children will pack their own baggage and keep them ready in the special room which is allotted to keep their bags, sweaters etc. And they will be taken to the open environment along with their teachers. Teachers teach them about the nature and sometimes they play over there. When they come back from the field their parents will be picking them up back to home. They wish a good day to each other. Thus the class hours ends.

How many faculty members are required in a class room?

One main trained teacher, a trained assistant teacher and a helper, are required in each classroom. Apart from this, in most of the kindergarten they will have 2-3 teacher trainees from different Montessori training schools.

What is the eligibility to become a Montessori school teacher?

A candidate who wishes to become a main teacher has to undergo five years of training, among these three years of theory and two years of practicum whereas a candidate who wishes to be an assistant teacher needs two years of training which includes theory and practicum.

What is the intake in a kindergarten per year?

They are often run by city or town administrations, churches, or registered societies. The intake depends on the size and facilities of the institution and it is decided by the concerned authority. However may be the maximum number of children in a classroom is 25. In case any child who applied for the admission is left out due to full enrolment, in such case the parents can intimate the same to the concerned Panchayat and it forwards the same to the concerned authority and the child will be paid the whole amount that he / she was supposed to spent for his/her kindergarten education by the government. Because such students should be given three years of kindergarten education at home by a special tutor which needs a big amount of money.

Is kindergarten run along with the actual school?

No, kindergarten is totally separated from the real school.

Do the children pay fees to learn?

Yes, each child has to pay fees like 60 to 90 Euro per month. It varies on the hours a child stays in the institution as some students stay back after school hours according to the demand of their parents. Apart from this they have to pay fees for lunch and drinking water.

Does the govt. give any financial aid to the children?

As Germany is a country that pays ample significance to its citizens specially the children and the youth the government pays much attention for the welfare of the same. Attending a Kindergarten is neither mandatory nor free of charge, but can be partly or wholly funded, depending on the local authority and the income of the parents.

Is there a system of formal evaluation in kindergarten?

Definitely there is no system of formal evaluation. But the teachers observe the children thoroughly and sense their serious weakness (if anything appears) of a

child and inform their parents and guide them to give various therapy by the experts to the children to overcome the same. And also each and every activity of the child like drawing, writing, painting etc are filed and kept as a document for each child separately. This record will be shown to their parents' in order to inform the status of the child in the classroom. As these files are kept as a confidential record and it can be shown to any one only with the permission of the concerned child and will be shown by the same child only.

What Are the Duties of a Kindergarten Teacher?

Instruction

The primary duty of a kindergarten teacher is, of course, to teach. While kindergarten teachers do provide direct instruction in certain instances, there isn't a whole lot of lecture at the kindergarten level. Rather, kindergarten teachers give pupils directions and then supervise them as they engage in projects as groups or individuals. While instructing or facilitating, a teacher must observe young students closely to ensure that they understand the material, and re-teach them when necessary.

Developing Curriculum

At this stage of development, it is not only important that students begin to grasp the very basic elements of reading, writing and mathematics, but also begin to develop an appreciation for art and music. Just as importantly, kindergarten pupils should be developing social skills, and it is the responsibility of the teacher to provide frequent play within the curriculum. While kindergarten teachers usually have state or federal standards to which they must teach, they are usually responsible for developing the specifics of their own curriculum. Developing curriculum entails not only work outside the school day, but also consultation with administrators and other teachers, as well as continuing education.

Maintaining Safety and Health

Because kindergarten students are generally 5 or 6 years old, they require constant monitoring to ensure that they are not engaging in unsafe behavior. In addition to providing physical safety, kindergarten teachers must maintain a warm and welcoming environment in which young children feel emotionally safe. As a result, kindergarten teachers must have deep reserves of patience and kindness upon which they can draw. Kindergarten teachers also have a responsibility to help their students begin thinking about their well-being by providing healthy choices at snack time and at lunch.

Correcting Assignments

While most kindergarten students are not assigned homework and the amount of work that a kindergarten teacher must correct is much less than teachers in the higher grades, it is still significant. Correcting or assessing students' work is integral to monitoring their academic progress, which is a crucial activity for teachers at all levels. Because kindergarten teachers are primarily responsible for the safety of children during the school day and must always be watchful, they also have less time to correct assignments during the school day and must often correct assignments outside school hours.

Communicating with Parents

As with other teachers, kindergarten teachers have a responsibility to communicate with the parents of their students, and this goes beyond a quarterly progress report. Kindergarten teachers should contact parents directly, either by phone, mail or email, whenever there is a problem or concern. However, many kindergarten teachers have begun to keep parents more directly in the loop by initiating periodic mailings or constructing websites that let parents know what their children are learning in school.

Are the children taught hygiene and cleanliness in the class room?

The practice of hygiene and health are already implanted in every child by their parents at home. They use a lot of papers for their class activities but no child will litter a piece of paper to make the classroom dirty. They all use the dustbin properly. In the same way each child knows how to use the toilet and to leave it neat and clean. Their beginning days in the kindergarten teachers follow them when they use the toilet and make sure whether the child is able to manage alone or not. In case if there is anyone who does not know how to use the toilet, such child will be instructed by the teacher. Therefore the classroom, toilet and the campus always remain neat and tidy. They follow the same thing although their life and maintain the nation healthy.

How do the teachers foster social values in children?

They learn respecting others by greeting them. Children always work in different groups and there they learn the value of give and take, co-operation, nature of helping, adjustment, self - control etc. Children learn to protect the public property by keeping things in order and neat and clean and it is very much visible among all citizens of Germany.

Conclusion

Kinder Garten education helps in cognitive development of children at the early grades of primary education and it has strong bearing on attendance and participation of children once they enter primary school. Kinder Garten education is considered to be very important for the child as it is the first step towards entering the world of knowledge as well as a healthy and purposeful life. Pre-primary education helps children become more independent and confident as well as promoting the all-round development of the children (Ramachandran et al., 2003). Children who have been to pre-primary school tend to learn more rapidly through an organised curriculum, learning aids and by interacting with other children. The main purpose of pre-primary education is to prepare children

physically, emotionally, socially and mentally for formal schooling. Through various play, children learn language skill, better social skills, more empathy, more imagination self-control and higher levels of thinking. Thus it can be concluded that kindergarten education is very essential for all the children of 3-6 years of old.

A Study on Relevance of Integration of the Means of Edutainment for Development of Life Skills, especially Critical Thinking and Creative Thinking among Adolescents of Bastar District in Chhattisgarh

Shaiju P.K.¹, Dr. Rages John²

Abstract

This was an experimental research which ended in final comparison of F values of Pre-test and Post-test of both control group and experimental group to know influence of different variables (independent variable – teaching through conventional method and teaching through means of edutainment & independent variable – relevance and effect of edutainment on development life skills of critical thinking and creative thinking on the adolescent students of Bastar District in Chhattisgarh) on each other and level of influence. The study was conducted in rural and urban areas of Bastar District. In the rural area, which is 35 kms away from Jagdalpur town, one Government School (Higher Secondary School, Bakkawand), one Private Aided School (Vimal Vidyashram Higher Secondary School, Chiurgoan) and one Private Unaided School (Jai Krista Convent School, Pahurbel) were selected for the study. In the semi urban areas of Jagdalpur one Government School (Higher Secondary School, Jagdalpur), one Private Aided School (Deepti Convent School, Jagdalpur) and one Private Unaided School (Vidya Jyoti Senior Secondary School, Jagdalpur) were selected for the study. 30 each students of class IX were selected from each school and they were equally divided into control group and experimental group. Pre-Test and Post-Test were conducted for both groups. The results were tabulated and analyzed using Two Way ANOVA to check levels of interaction between different variables (Area wise and type of school) and to test research hypotheses. The study proved that means of edutainment, used in transaction of subject matter Human Rights especially Rights of Children, consisting of Brainstorming session, games, film show of Hindi movie

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'Siddharth' directed by Richie Mehta, 2013 on Rights of Children and group discussion were successful in developing positive critical thinking and creative thinking in adolescent students of Bastar District. The level of achievement through integration of means of edutainment was more among students of Government schools both in rural and urban areas.

Key words: Edutainment (Edutainment and Entertainment), Life skills, Critical thinking and Creative thinking.

Introduction

Chhattisgarh is a developing state with a vast majority of its population belonging to educationally and socially backward areas. Most students in Government schools are first / second generation learners. They have not developed properly and completely in areas of life skills of critical thinking and creative thinking. In this very competitive society we live in, the need for critical and creative thinking are now in demand more than ever. People who think critically and creatively can contribute to the progress and development of the society and nation to a great extend. This study was an attempt to see whether integration of means of edutainment can be helpful in development of life skills especially critical and creative thinking among adolescent students of Bastar District in Chhattisgarh.

Operational Definition of the Terms Used

(i) Edutainment:

"Edutainment is the act of learning through a medium that both educates and entertains", American Heritage Dictionary

Edutainment, also called entertainment education, is a new generation method of teaching which incorporates educational message and means of entertainment.

The different types and means of edutainment that can be integrated in teaching and learning include Communication satellite, Audio and video, Films and

advertisements, Radio and T V, Internet and electronic mail, Educational games, Zoos, Museums and corporations, parks and public access areas.

The various characteristics of edutainment are Entertainment, Game / Play, Experiencing, Meaning of life, Individual and social role, Simulation and approaching the reality, Cognition and self cognition, Interaction, etc.

(ii) Life skills:

"Life skills are the abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life", WHO

(iii) Critical thinking:

Critical thinking is ability to analyze information or data and experience in an objective manner. It includes sub skills like analyzing peer influences, media influences, attitudes, values, social norms and factors. It is the ability to think clearly and rationally about what to do or what to believe. It includes ability to engage in reflective and independent thinking.

(iv) Creative thinking:

"Creative thinking is not a talent, it is a skill that can be learnt. It empowers people by adding strength to their natural abilities which improves teamwork, productivity and where appropriate profits" – Edward de Bono

Creative thinking is an ability that helps one to look beyond his/her direct experience and address issues in a perspective which is different from obvious. It means thinking about new things or thinking in new ways. It includes lateral thinking and ability to perceive patterns that are not obvious. It adds novelty and flexibility to the situation of our daily life.

"Both creative thinking and critical thinking skills are valuable and neither is superior"

(‘Learning to Learn-Creative Thinking and Critical Thinking’, Compiled by Ann Coughian (2007-08), DCU Student Learning Resources, (P. 9)

(v) Adolescents:

Adolescence (from Latin adolescere, meaning 'to grow up') is a transitional stage of physical and psychological development that generally occurs during the period from puberty to legal adulthood (age of majority). Adolescents belong to period of human growth that occurs between childhood and adulthood (between age of 10 and 21.

(vi) Chhattisgarh:

Chhattisgarh takes its name from 36 ancient forts in the area. Chhattisgarh is a heavily forested state in central India known for its temples and waterfalls. Chhattisgarh (Chattisgarh, literally 'Thirty-Six Forts') is one of 29 states located in central India. It is the 10th largest state in India, with an area of 135,194 km². With a population of 28 million, Chhattisgarh is the 17th most-populated state in the country. A resource-rich state, it is a source of electricity and steel for country, accounting for 15% of total steel produced. Chhattisgarh is an educationally and socially backward state in map of India.

Review of Literature

(i) ‘Learning to Learn-Creative Thinking and Critical Thinking’, Compiled by Ann Coughian (2007-08), DCU Student Learning Resources:

This paper was an answer to why creative and critical thinking skills are important. It explained processes and approaches involved in creative and critical thinking. It also presented a lot of strategies like reflection, self-awareness, judgement, etc to improve creative and critical thinking skills.

(ii) ‘Using Edutainment to facilitate mathematical Thinking and Learning: An Exploratory Study’, Ruby Lynch-Arroyo & Joyce asing-Cashman, Uty of Texas

at El Paso, in Journal of Mathematics Education, December 2016, Vol.9, no.2, pp. 37-52:

The focus of this study was to ascertain levels of students' creative-critical mathematical thinking and problem solving when element of edutainment is introduced as a pedagogical tool. The results of the study indicated that utilizing numbers as a teaching and learning tool generally facilitated movement of students' thought processes to levels of critical-creative thinkers, increased engagement and promoted transition from fixed mindsets to growth mindsets.

- (iii) 'The Development of Edutainment Learning Model in Social Science education' (Research and Development Study on IPS Education at Elementary Level in Bandung and Cimahi), Dra.YaniKusmarni, Dra. MurdiyaWinarti & YeniKurniawati:

This research analyzed, processed and described various innovations in IPS learning which are based on edutainment. It also described the competences achievement based on the edutainment learning model. It used Research and Development Study which has been begun on the first step which was descriptive Study and which tried to develop critical thinking through edutainment.

- (iv) 'Street Theatre for Edutainment- A participatory Research' (PPT), Anjali Capila [Department of Development Communication and Extension, Lady Irwin College (Uty of Delhi)], India Pragati Bhalla [AJK Mass Communication Research Centre, Jamia Millia Islamia Central Uty, New Delhi (India)] & Aparna Khanna [Department of Development Communication and Extension, Lady Irwin College (Uty of Delhi), India]:

This research paper aimed at developing Self awareness, Critical and creative thinking while improvising, Problem solving, Decision making agreed-upon ending.

The study also revealed the process of Planning and Performance. Post Performance review enhances their life skills development and motivates some of them to become catalysts of change.

These and like other studies prove that there is scope for this current study on the Relevance of Integration of Means of Edutainment for Development of Life Skills, especially Critical and Creative Thinking among Adolescents of Bastar District.

Research Objectives

- (i) To find out effect of edutainment on overall development of adolescents of Bastar District in Chhattisgarh
- (ii) To find out effect of edutainment on life skill development of adolescents
- (iii) To find out effect of edutainment on development of critical thinking of adolescents
- (iv) To find out effect of edutainment on development of creative thinking of adolescents

Research Hypotheses

- (i) There will be no effect of edutainment on overall development of adolescents of Bastar District in Chhattisgarh.
- (ii) There will be no effect of edutainment on life skill development of adolescents.
- (iii) There will be no effect of edutainment on development of critical thinking of adolescents.
- (iv) There will be no effect of edutainment on development of creative thinking of adolescents.

Methodology of Research: Experimental Research

(i) Population and Sampling

The study was conducted both in rural and urban areas of Bastar District. Both in rural and urban areas, one each Government, Private Aided and Private Unaided School were selected. 30 each students of class IX were randomly selected based on probability sampling technique using lottery method and were equally divided

into control and experimental groups. Pre-Test and Post-Test were conducted for both groups. The results were tabulated and analyzed using Two Way ANOVA to check levels of interaction between different variables and to test research hypotheses. The total number of samples consisted of 180 including experimental and control groups. All students were from class IX and had same IQ level. Thereby the sample of population had homogeneity by nature.

(ii) Instruments Used in the Study

- a. Questionnaire prepared by researcher for initial survey to know background of population (students)
- b. Edutainment programme prepared by the researcher which included Brainstorming session, games, film show of Hindi movie 'Siddharth' directed by Richie Mehta, 2013 on Rights of Children and group discussion
- c. Questionnaire for pre-test and post test which were standardized through pilot test and item analysis

(iii) Procedure Followed

Initial survey was conducted to know the background of students. Pre-test was conducted for both control and experimental groups to check the students' knowledge regarding critical and creative thinking. The first part of questionnaire included questions related to critical and creative thinking. The second part of questionnaire consisted of questions regarding Human Rights especially Rights of Children. The results were tabulated. After pre-test, control group was taught traditionally about critical thinking and creative thinking, Human Rights and Rights of Children.

The experimental group was taught same topic through means of edutainment. After watching the Hindi movie 'Siddharth' (directed by Richie Mehta, 2013) on Human Rights, especially Rights of children, students were given time for discussion and clarification of doubts based on TV show which gave them chance to express their ideas freely, critically and creatively. Post-test was conducted for both groups to check effect of edutainment in development of critical and creative thinking.

The results were tabulated manually using Two-way ANOVA as there were two treatment variables / independent variable with different factors. After finding out F value of both pre-test and post-test for control and experimental groups separately, comparison was made between the results. The variables of this research included dependent variable – level of development of critical and creative thinking of adolescent students of class IX in relation to area level (urban and rural) and type of the school (Government, Private Aided and Private Unaided) and independent variable - use of edutainment programme. The validity and reliability of test items were checked. Necessary modifications were made in questionnaire after discussing with experts in educational research and asking for their suggestions.

Analysis of Pre-test and post-test results of Control group

(i) Pre-test results of Control group

Source of variation	Sum of squares	Df	Mean squares	F
(A) Area wise	10	1	10	0.045
(B) Type of school	1072.09	2	536.04	2.431
Interaction A × B (Area wise × Type of school)	53.61	2	26.80	0.121
Error within treatments	18520.12	84	220.477	

Table 1 : Summary Table - Analysis of variance (Pre-test of Control group)

The calculated value of F for main effect of area of school on achievement of students in critical and creative thinking, irrespective of their type of school, has come out to be 0.045, for df 1 and 84, which is less than F value 3.95 at 0.05 level of significance. The obtained value of F for main effect of type of school on the achievement of students, irrespective of their area, has come out to be 2.431, for df 2 and 84, which is less than the F value 3.10 at 0.5 level. The estimated value of F for double interaction between A and B with respect to achievement of students has come out to be 0.121, for df 2 and 84, which is less than F value 3.10 at .05 level.

(ii) Post-test results of Control group:

Source of variation	Sum of squares	Df	Mean squares	F
(C) Area wise	8.1	1	8.1	0.036
(D) Type of school	1075.4	2	537.7	2.422
Interaction A \times B (Area wise \times Type of school)	50.8	2	25.4	0.114
Error within treatments	18647.42	84	221.993	
Total	19781.72	89		

Table 2 : Summary Table - Analysis of variance (Post-test of Control group)

The calculated value of F for main effect of area of school on achievement of students in critical and creative thinking, irrespective of their type of school, has come out to be 0.036, for df 1 and 84, which is less than F value 3.95 at 0.05 level of significance. The obtained value of F for main effect of type of school on the achievement of students, irrespective of their area, has come out to be 2.422, for df 2 and 84, which is less than F value 3.10 at 0.5 level of significance. The estimate value of F for the double interaction between A and B with respect to achievement of students has come out to be 0.114, for df 2 and 84, which is less than F value 3.10 at .05 level. These results show that there is not much difference between achievement level of Control group in Pre-test and Post-test.

Analysis of Pre-test and post-test results of Experimental group

(i) Pre-test results of Experimental group

Source of variation	Sum of squares	Df	Mean squares	F
(E) Area wise	11.37	1	11.37	0.051
(F) Type of school	1160.60	2	580.30	2.623
Interaction A \times B (Area wise \times Type of school)	60.96	2	30.48	0.138
Error within treatments	18560.47	84	220.958	
Total	19793.40	89		

Table 3 : Summary Table - Analysis of variance (Pre-test)

Area wise (A): The computed value of F for main effect of area of school on achievement of students in critical and creative thinking, irrespective of their type of school, has come out to be 0.051, for df 1 and 84, which is less than F value 3.95 at 0.05 level of significance. This result indicates that students belonging to urban and rural areas do not differ significantly in their achievement in critical and creative thinking.

Type of school (B): The obtained value of F for main effect of type of school on achievement of students, irrespective of their area, has come out to be 2.623, for df 2 and 84, which is less than F value 3.10 at 0.5 level of significance. This shows that achievement of students belonging to different types of school do not differ significantly.

Interaction A \times B effect: The estimated value of F for double interaction between A and B with respect to achievement of students has come out to be 0.138, for df 2 and 84, which is less than F value 3.10 at .05 level. This indicates that there is approximately same difference in means of achievement scores of students belonging to urban and rural areas regardless of their type of school i.e., Private Aided, Government and Private Unaided.

(ii) Post-test results of Experimental group

Source of variation	Sum of squares	Df	Mean squares	F
(A) Area wise	154.71	1	154.71	1.274
(B) Type of school	1249.27	2	624.64	5.145
Interaction A \times B (Area wise \times Type of school)	48.97	2	24.49	0.201
Error within treatments	10187.45	84	121.398	
Total	11650.40	89		

Table 4 : Summary Table - Analysis of variance (Post-test)

Area wise (A): The computed value of F for main effect of area of school on achievement of students in critical and creative thinking, irrespective of their type of school, has come out to be 1.274, for df 1 and 84, which is less than F value 3.95 at 0.05 level of significance but higher than that of pre-test. There is difference in achievement level of students of class IX after special treatment of edutainment.

Type of school (B): The obtained value of F for main effect of type of school on achievement of students in critical and creative thinking, irrespective of their area, has come out to be 5.145, for df 2 and 84, which is much higher than F value 3.10 at 0.5 level of significance. This shows that achievement of students belonging to different types of school differ significantly after special treatment through edutainment.

Interaction A \times B effect: The obtained value of F for double interaction between A and B with respect to achievement of students in critical and creative thinking has come out to be 0.201, for df 2 and 84, which is less than F value 3.10 at .05 level. This is also higher than that of pre-test. This indicates that there is approximately significant difference in means of achievement scores of students belonging to urban and rural areas regardless of their type of school i.e., Private Aided, Government and Private Unaided schools. This shows that there is some difference in means of achievement scores of students of Private Aided, Government and Private Unaided schools irrespective of their area, urban and rural.

Comparative analysis of Pre-test and Post-test results of Control group and Experimental group

A close analysis of the results of pre-test scores of both Control and Experimental Groups shows that they are more or less the same. The Post-test scores of both groups differ significantly. Control group's post-test result is more or less the same of Pre-test whereas Experimental group's post-test result is higher than that of Pre-test. The Pre-test scores and Post-test scores of control group are somewhat

the same whereas there is much difference in the Pre-test scores and Post-test scores of experimental group. The comparative analysis of results of pre-test as well as post-test of the experimental group proved that integration of edutainment programme in curriculum plays an effective role in overall development of life skills, critical and creative thinking abilities of adolescent students of Bastar District in Chhattisgarh.

Source of variation	Pre-test		Post-test	
	Mean squares	F	Mean squares	F
(A) Area wise	10	0.045	8.1	0.036
(B) Type of school	536.04	2.431	537.7	2.422
Interaction A \times B (Area wise \times Type of school)	26.80	0.121	25.4	0.114

Table 5 : Summary Table (Analysis of variance) of Pre-test and Post-test results of Control group

Source of variation	Pre-test		Post-test	
	Mean squares	F	Mean squares	F
(A) Area wise	11.37	0.051	154.71	1.274
(B) Type of school	580.30	2.623	624.64	5.145
Interaction A \times B (Area wise \times Type of school)	30.48	0.138	24.49	0.201

Table 6 : Summary Table (Analysis of variance) of Pre-test and Post-test results of Experimental group

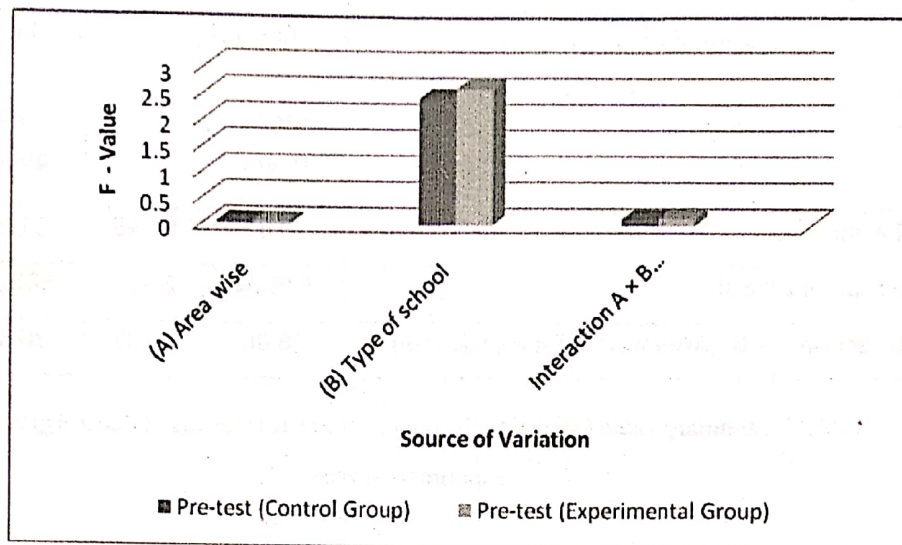


Figure 1 : F Value of Pre-test Results of Control group and Experimental Group

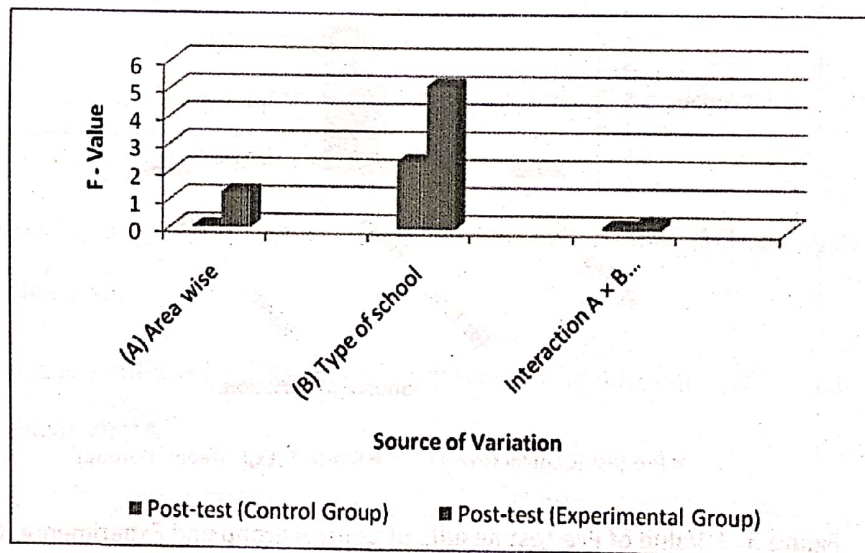


Figure 2 : F Value of Post-test Results of Control group and Experimental Group

Source of variation	Control group		Experimental group	
	Mean squares	F	Mean squares	F
(A) Area wise	10	0.045	11.37	0.051
(B) Type of school	536.04	2.431	580.30	2.623
Interaction A \times B (Area wise \times Type of school)	26.80	0.121	30.48	0.138

Table 7 : Summary Table (Analysis of variance) of Pre-test results of Control group and Experimental group

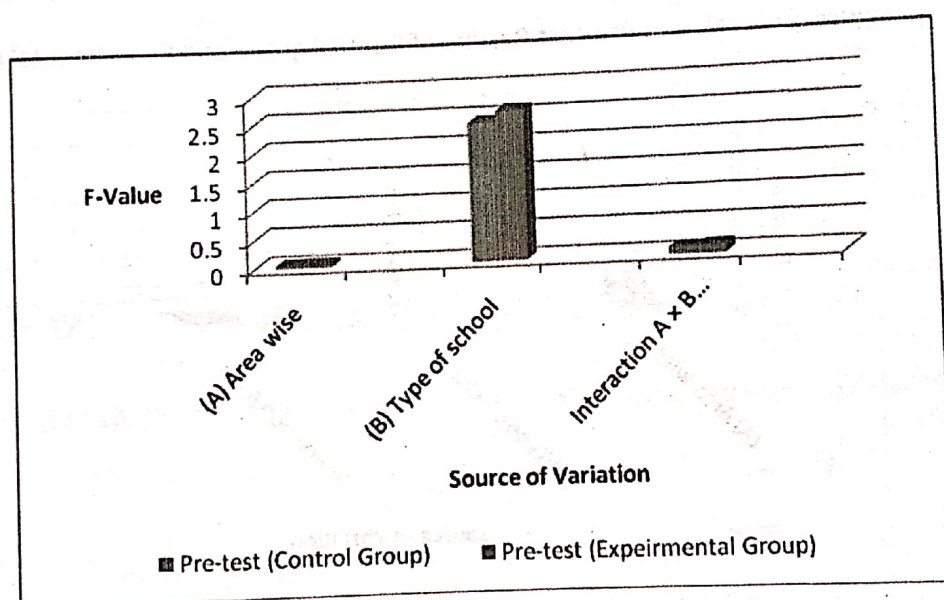


Figure 3 : F Value of Pre-test Results of Control group and Experimental Group

Source of variation	Control group		Experimental group	
	Mean squares	F	Mean squares	F
(A) Area wise	8.1	0.036	154.71	1.274
(B) Type of school	537.7	2.422	624.64	5.145
Interaction A \times B (Area wise \times Type of school)	25.4	0.114	24.49	0.201

Table 8 : Summary Table (Analysis of variance) of Post-test results of Control group and Experimental group

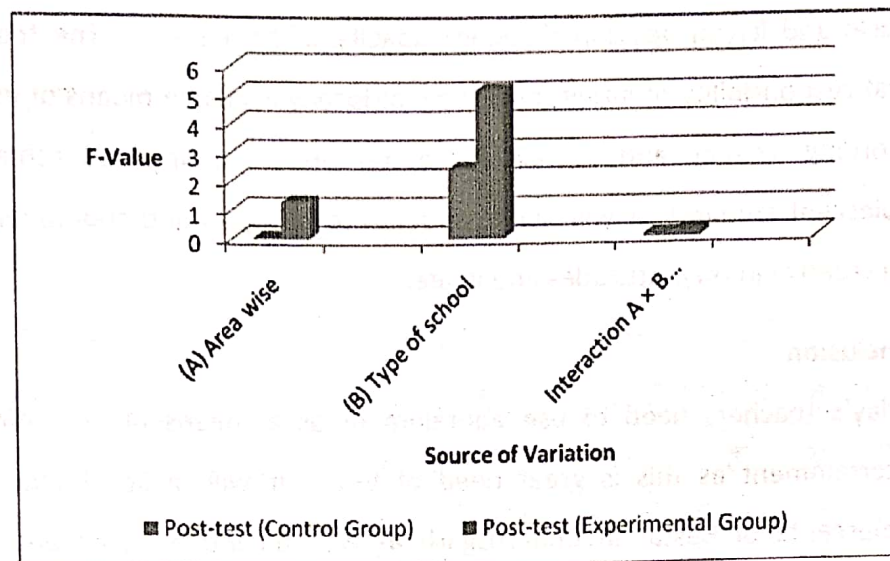


Figure 4 : F Value of Post-test Results of Control group and Experimental Group

Summary and findings of the study

- (i) There is significant effect of edutainment on overall development of adolescent students of Bastar District in Chhattisgarh.
- (ii) There is significant effect of edutainment on life skill development of adolescents.
- (iii) There is significant effect of edutainment on development of critical thinking of adolescents.
- (iv) There is effect of edutainment on development of creative thinking of adolescents.

Major recommendations

This study and other studies of different scholars proved that edutainment is useful to teachers and students for effective transaction of curriculum and for better understanding of the subject-matter. This current study proved that integration of the means of edutainment is effective in increasing the creative and critical thinking abilities of adolescent students of Chhattisgarh. Edutainment is a creative means of education for imparting knowledge as per new paradigm shift of constructivism in teaching and learning. Edutainment is always creative and

critical and it can develop thinking capacity of adolescents. The teachers have great responsibility of integrating some of locally available means of edutainment according to time and context for better understanding and achievement of adolescent students. It will make students to be open and spontaneous, critical and creative in their attitudes and in life.

Conclusion

Today's teachers need to use edutainment as a means of educating through entertainment as this is great need of times. It will make changes in life of adolescents of Bastar in Chhattisgarh as it is an interactional and innovative approach in Indian classrooms. It can easily integrate three domains of learning namely, cognitive, affective and psycho-motor levels for the better achievement of students.

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साहित्य में यथार्थ के विविध रूप

डॉ० (श्रीमती) जस्सी जोस¹

सारांश

समाजवादी यथार्थवाद की महत्वपूर्ण विशेषता है उसकी लोकमंगलकारी आस्था। आचार्य शुक्ल जिस साधनावस्था की बात करते हैं, वह इस विचारधारा का मूलमंत्र है। समाजवादी यथार्थवाद यह घोषित करता है कि जीवन वह क्रियाशीलता, वह रचनात्मकता है कि जिसका उद्देश्य मनुष्य की बहुमूल्य वैयक्तिक क्षमताओं और योग्यताओं का प्रकृति की शक्तियों पर विजय के लिए उसके स्वास्थ्य और उसके दीर्घायु के लिए और इस धरती पर जीवित रहने के लिए महान आनन्द के लिए, निर्बाध विकास है— जिसे वह अपनी अनवरत बढ़ती हुई अपेक्षाओं के अनुरूप एक ही परिवार में संयुक्त मानव-जाति का भव्य निवास-स्थान बनाना चाहता है। समाजवादी यथार्थवाद को सीमित अर्थ में ग्रहण करने पर यह भ्रम उत्पन्न हो जाता है कि इसमें सामाजिक समस्याओं के सामने व्यक्ति की अनुभूतियों को नगण्य मान लिया जाता है। वस्तुतः बात ऐसी है नहीं। यथार्थवाद को सीमित अर्थ में लेना अनुचित है। उसमें सामाजिक समस्याओं के चित्रण के अलावा प्रकृति-चित्रण भी हो सकता है, संघर्ष के चित्रण के अलावा प्रेम के मुक्तक भी लिखे जा सकते हैं। शर्त यह है कि जो भी भावना या अनुभूति साहित्य में आये वह समाज में पली हुई हो, 'विशिष्ट और अद्वितीय' न होकर सामान्य और जनजीवन की प्रतिनिधि हो। अमूर्त न होकर हाड-मांस से बने मनुष्यों के जीवन को चित्रित करने वाली हो।

साहित्य में यथार्थवादी तत्व को सर्वप्रथम अरस्तू के विचारों में मान्यता प्राप्त हुई क्योंकि प्लेटो के आदर्शवाद के विरोध में उन्होंने साहित्य को प्रकृति का अनुकरण माना। भौतिक या लौकिक जगत का अनुकरण यथार्थवादी दृष्टिकोण ही है। अरस्तू की मूल धारणा यथार्थधारित होते हुए भी यथार्थवाद का आरंभ वहां से नहीं माना जाता क्योंकि वह

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सोद्देश्य विचारधारा नहीं थी। सक्रिय आंदोलन के रूप में यथार्थवाद 19वीं शताब्दी में आया। इस दृष्टिकोण में अतिरंजनाएं आयीं। फलतः यथार्थवाद प्रकृतवाद के यथातथ्य चित्रण से होता हुआ अतिथार्थवाद की अतिरंजित एकांगिता पर पहुंचा। दूसरी ओर फ्रायड, एडलर के सिद्धांतों से परिचालित मनोवैज्ञानिक यथार्थवाद की स्थापना हुई, जिसमें आंतरिक संवेगों के लिए बाहरी हलचलों की उपेक्षा कर दी गई है। इन दोनों से अलग अंतःबाह्य के संतुलित दृष्टिकोण को लेकर चलने वाला साहित्य सामाजिक यथार्थवादी कहलाया जो बहुत गहरे रूप में मार्क्स की विचारधारा से प्रभावित है। यथार्थ दृष्टि का स्वस्थ स्वरूप—निर्धारण करने के लिए इन विविध विचारधाराओं का विश्लेषण आवश्यक है।

यथार्थवाद

यथार्थवाद और प्रकृतवाद में सीमारेखा निश्चित कर पाना बहुत कठिन है क्योंकि उन्नीसवीं तथा बीसवीं शताब्दी के कुछ उपन्यासकारों ने जिन्होंने यथार्थवाद को अपनाया है, यथार्थवाद और प्रकृतवाद का प्रयोग एक साथ किया है। इस प्रकार यथार्थवाद तथा प्रकृतवाद परस्पर एक-दूसरे का रूप धारण करते हैं। प्रमुख यथार्थवादी लेखक स्तांडाल, गोटियर, बालजाक, फ्लावेयर, गोनकोर्ट बंधु आदि हैं। इन लेखकों का उद्देश्य था— जीवन के सभी पक्षों का यथातथ्य निरूपण। इन्होंने एक ऐसे समाज का चित्रण किया जिसके प्रति उनके मन में अदम्य घृणा थी और उनकी सहानुभूति उस वर्ग के साथ थी जो समाप्त होने जा रहा था। 19वीं शताब्दी के अंग्रेज और फ्रांसीसी उपन्यासकार समान रूप से एक ही समस्या से उलझे थे। राल्फ फाक्स ने 'उपन्यास और लोकजीवन' नामक पुस्तक में इसका उल्लेख किया है। अंग्रेज और फ्रांसीसी उपन्यासकार समान रूप से एक ही समस्या से उलझे थे— वह यह कि एक ऐसे समाज को कलात्मक रूप और अभिव्यक्ति कैसे दी जाए जो कि उन्हें स्वीकार्य नहीं है। इन यथार्थवादी कलाकारों ने अपने सामाजिक यथार्थ को सजीवता से चित्रित किया है, परंतु इनकी सीमा यह है कि उस भयावह कटुता को झेलने के सिवाय इनके पास कोई उपाय नहीं है।

प्रकृतवाद

यथार्थवाद का विकास आगे चलकर प्रकृतवाद में हुआ। एमील जोला को इस धारा का प्रतिनिधि माना जाता है। प्रकृतवादी यह मानता है कि मनुष्य अपनी सहज वृत्तियों, भावावेगों और परिवेश द्वारा नियंत्रित होता है। जोला कहते हैं, "उपन्यासकार को एक वैज्ञानिक होना चाहिए। वह नैतिक रूढ़ियों और कला के प्रति उदासीन रहे।" नैतिकता के प्रति इस उदासीनता का एक महत्वपूर्ण कारण था। मध्ययुगीन धार्मिक आधिपत्य में अत्यधिक नैतिक प्रतिबंधों की प्रतिक्रिया स्वरूप अब कला को उद्देश्य विहीन कर दिया था। सामंत वर्ग द्वारा कला का उपयोग अपने स्वार्थों के लिए किये जाने की आशंका से प्रेरित कलाकरों में (जिनका नेता गोटियर था) एक नवीन दृष्टि को जन्म दिया जो आगे चलकर बोदलेयर और कान्ट जैसे दार्शनिकों का समर्थन पाकर जहाँ एक ओर प्रकृतवाद में विकसित हुआ वहीं इसका दूसरा रूप आगे चलकर अतियथार्थवाद कहलाया।

अतियथार्थवाद

फ्रांस में ही सन् 1919 में अतियथार्थवादी आंदोलन का जन्म हुआ। आंद्रे ब्रेतों इसके प्रतिनिधि थे। अतियथार्थवाद, "एक विशुद्ध आत्मिक स्वतः क्रिया है। जिसके द्वारा विचारों के वास्तविक क्रम को मौखिक लिखित या अन्य किसी रूप में प्रकट किया जाता है। विचारों का श्रुतिलेखन जो बुद्धि के नियंत्रण से मुक्त हो, तथा अन्य सौन्दर्यात्मक अथवा नीतिपरक पूर्वाग्रह से विलग हो।" इस प्रकार यह आंदोलन परंपरागत कलात्मक मान्यताओं को त्यागकर चला। अतियथार्थवाद यथार्थ से नहीं, यथार्थ से जो परे है—अचेतन के जगत से अतियथार्थवादी बहुत प्रभावी थे। आंतरिक यथार्थ और बाह्य यथार्थ के अंतर्विरोधों को दूर करने के लिए अतियथार्थवादियों ने इन दोनों को संश्लेषण द्वारा स्वरूप करने पर बल दिया है, लेकिन इस प्रक्रिया में व्यवस्था का अभाव था। अपनी अन्वेषण शक्ति पर अधिक विश्वास करने वाले अतियथार्थवादी पूर्व-व्यवस्था और पूर्व-परम्परा का सशक्त विरोध करते थे। इस प्रकार अतियथार्थवाद अव्यवस्था को प्रतिष्ठित करने के लिए आंदोलन करता है।

मनोवैज्ञानिक यथार्थवाद

मनोविश्लेषण शास्त्रियों के अंतः विश्लेषण के सिद्धांतों को मानकर चलने वाला यथार्थवादी दृष्टिकोण मनोवैज्ञानिक यथार्थवाद कहलाया। मनोवैज्ञानिक साहित्य में कोई नई चीज नहीं है पर सैद्धांतिक अर्थ में मनोवैज्ञानिक यथार्थ एक आधुनिक दृष्टिकोण है। मनोवैज्ञानिक मस्तिष्क के चेतन, उपचेतन और अवचेतन तीन विभाग करते हैं और अवचेतन को सर्वाधिक महत्वपूर्ण मानते हैं। उनका कहना है कि मनुष्य का चेतन अंश उसके कार्यकलापों के लिए जिम्मेदार नहीं, वह जो करता है उसके लिए उसका अवचेतन उत्तरदायी है। अवचेतन ही मनुष्य के सारे क्रियाकलापों और नैतिक आचारों का नियंता है। इसलिए मनुष्य मूलतः वह नहीं है, जो ऊपर से दिखाई देता है, बल्कि उसका प्रच्छन्न रूप ही उसकी वास्तविकता है। मनोवैज्ञानिक उपन्यासकार इलाचन्द्र जोशी कहते हैं, "आधुनिक मनुष्य ने सभ्यता के ऊपरी संस्कारों के लेप से अपने मन में अवश्य सफेदपोशी कर ली है जिस परदे पर वह सफेदपोशी की गई है, वह इतना झीना है कि जरा-सी बात में वह फट जाता है और उसमें तनिक भी छिद्र पैदा होते ही उसके नीचे दबी पड़ी पशु-प्रवृत्तियाँ परिपूर्ण वेग से प्रस्फुटित होने लगती हैं। इन पशु-प्रवृत्तियों को जितने ही जोर से सभ्य मनुष्य नीचे को दबाता है, उतने ही प्रवेग से वे रबर की गेंद की तरह उछाल मारने लगती हैं।"

समाजवादी यथार्थवाद

यथार्थवाद को व्यापक अर्थ मार्क्सवादी दृष्टिकोण से मिला। कला-संबंधी प्रत्येक विचारधारा में मनुष्य और उसके यथार्थसंबंधी एक निश्चित अवधारणा होती है। मार्क्सवादी विचारधारा में यथार्थ की एक नवीन और समग्रता को गतिशीलता में धारण करने वाली अवधारणा है। मार्क्स की विचारधारा से प्रेरित यथार्थवादी लेखकों को सामाजिक-यथार्थवादी या प्रगतिवादी कहा जाता है।

समाजवादी यथार्थवाद मूलतः मानववादी आदर्शों को लेकर चलता है। सच्चे अर्थों में मानववाद की स्थापना तब तक नहीं हो सकती, जब तक समाज में शोषक और शोषित का संबंध बना रहेगा। इस तथ्य की पहचान साहित्यकार के लिए बहुत जरूरी है। शोषक और शोषित के संबंध को समाप्त करने के लिए, वैयक्तिक सम्पत्ति का अंत जरूरी है, तभी मानवीय भावनाएं और मनुष्य के मौलिक अधिकार सम्पूर्णतः स्वतन्त्र हो पायेंगे। सही अर्थों में— आत्मगत और वस्तुगत, दोनों रूपों में— मानवीय होंगे।

समाजवादी यथार्थवाद की सबसे महत्वपूर्ण धारणा है, कला की सोद्देश्यता। साहित्य और कला का उद्देश्य मानवीय चेतना का विकास करना और समाज-व्यवस्था को सुधारना है। यह उद्देश्य तभी पूर्ण हो सकता है जब साहित्यकार श्रमिक वर्ग की उन्नति और उसके द्वारा विश्व परिवर्तन को प्रेरणा दे, नए समाजवादी विश्व के उदय और समृद्धि को प्रतिबिंबित करें समाज के बड़े वर्ग के क्रांतिकारी संघर्ष में योग दे।

समाजवादी यथार्थवाद की महत्वपूर्ण विशेषता है उसकी लोकमंगलकारी आस्था। आचार्य शुक्ल जिस साधनावस्था की बात करते हैं¹, वह इस विचारधारा का मूलमंत्र है। समाजवादी यथार्थवाद यह घोषित करता है कि जीवन वह क्रियाशीलता, वह रचनात्मकता है कि जिसका उद्देश्य मनुष्य की बहुमूल्य वैयक्तिक क्षमताओं और योग्यताओं का प्रकृति की शक्तियों पर विजय के लिए उसके स्वास्थ्य और उसके दीर्घायु के लिए और इस धरती पर जीवित रहने के लिए महान आनन्द के लिए, निर्बाध विकास है— जिसे वह अपनी अनवरत बढ़ती हुई अपेक्षाओं के अनुरूप एक ही परिवार में संयुक्त मानव-जाति का भव्य निवास-स्थान बनाना चाहता है। समाजवादी यथार्थवाद को सीमित अर्थ में ग्रहण करने पर यह भ्रम उत्पन्न हो जाता है कि इसमें सामाजिक समस्याओं के सामने व्यक्ति की अनुभूतियों को नगण्य मान लिया जाता है। वस्तुतः बात ऐसी है नहीं। यथार्थवाद को सीमित अर्थ में लेना अनुचित है। उसमें सामाजिक समस्याओं के चित्रण के अलावा प्रकृति-चित्रण भी हो सकता है, संघर्ष के चित्रण के अलावा प्रेम के मुक्तक भी लिखे जा सकते हैं। शर्त यह है कि जो भी भावना या अनुभूति साहित्य में आये वह समाज में पली हुई हो, 'विशिष्ट और अद्वितीय न होकर सामान्य और जनजीवन की प्रतिनिधि हो। अमूर्त न होकर हाड़-मांस से बने मनुष्यों के जीवन को चित्रित करने वाली हो।

स्वस्थ यथार्थ दृष्टि

यथार्थवाद के विविध रूपों के अध्ययन से स्पष्ट होता है कि फ्रांसीसी आंदोलन का यथार्थवाद, प्रकृतवाद और अतिथार्थवाद बाह्यजीवन की अमहत्वपूर्ण समस्याओं को आधार बनाकर चले, जो कि अंततः स्वप्निल बड़बड़ाहट में डूबकर यथार्थ से पलायन कर गए। मनोवैज्ञानिक यथार्थवाद एक दूसरे अतिवाद तक पहुंचा जिसमें व्यक्ति का अंतर्मन ही प्रमुख हो गया और बाह्य जीवन की प्राथमिक और महत्वपूर्ण समस्याएं

उपेक्षित रह गई। समाजवादी यथार्थवाद अंतर्बाह्य के संश्लिष्ट रूप को लेकर चला, जिसमें पूर्ववर्ती एकांगी धारणाओं की अपेक्षा समग्रता और ठोस वैज्ञानिक विचारधारा है। इस प्रकार समाजवादी यथार्थवाद की दृष्टि सच्चे अर्थों में प्रगतिशील है। इस दृष्टि से किसी भी लेखक की कृति के मूल्यांकन में इस बात पर विशेष ध्यान रखना चाहिए कि लेखक कहां तक अपने समाज की वास्तविकता को समग्रता के साथ सही-सही चित्रित कर पाया है। किसी साहित्यकार की प्रगतिशीलता की सही कसौटी यही है कि उसने अपने समय के वर्ग संघर्ष और अंतर्विरोधों को कहां तक समझा है और समाज की प्रगतिशील शक्तियों के प्रति उसकी प्रगतिशील धारणा है या नहीं। इस जीवनदर्शन की मानववादी सक्रियता ही रचना की शक्ति हो सकती है जो पाठक को भी सक्रियता की प्रेरणा दे। समाजवाद हमारे सामने एक ऐसी समाज-व्यवस्था के रूप में आता है जो हर मनुष्य को मनुष्य बनाती है, एक सर्जक बनाती है और वह सर्जक भी हर स्तर पर आर्थिक राजनीतिक और सांस्कृतिक पर। कलाकार को यह भी चेतना प्रदान करने का अर्थ है उसे वह भूमिका अदा करने में मदद देना, जिसके द्वारा वह मनुष्यों में अपनी मानवीय चेतना और इस प्रकार सर्जनात्मक गुण के प्रति जागृति पैदा करता है। यह दृष्टि वह साहित्यिक संश्लेषण है जो चयन तथा सृजन के द्वारा सहृदय की यथार्थता विषयक धारणा को तीव्र करता है। समाजवादी यथार्थ अपने में सर्वथा पूर्ण दृष्टि है यह कहना उसकी द्वन्द्वात्मक गतिशीलता की उपेक्षा करना होगा। मार्क्स के अनुसार द्वन्द्वात्मक दर्शन के लिए कुछ भी अन्तिम नहीं है। इतने पर भी यह निश्चित है कि यथार्थवाद के विकास में यह सबसे अधिक समर्थ वैज्ञानिक और मानववादी विचारधारा है। इसीलिए यह है। सबसे अधिक सार्थक और मान्य है।

सहायक संदर्भ ग्रंथों की सूची

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