"Floristic Diversity of Har-Gange with special reference to some Ethnomedicinal Plants" : A Case Study

Dana Ram (M.Phil.) , Asstt. Prof. BOTANY

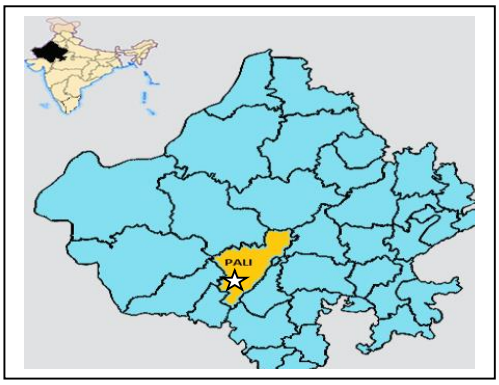
S.M.P.B.J.GOVT.COLLEGE SHEOGANJ (SIROHI)-307027

ABSTRACT

"A number of reports are available on medicinal and aromatic plants of different regions of Aravali range of Rajasthan. However, there are few localities which have a rich floristic composition with many species of ethnomedicinal importance. Garasiya (a tribe) dominated Har-Gange is one of them, which is located near Rata Mahaveer Jain Temple in Bali Tehsil of Pali district, Rajasthan where many species of angiosperms which include deciduous and semi-evergreen trees, shrubs, climbers, aquatic and semi-aquatic medicinal & aromatic herbs. Besides these, there has been reported few species of liver-worts and one species of scouring rush and three species of fern. During past 6 years, many seasonal surveys specially in rainy season were conducted alongwith research scholar Mr. Satveer Singh from M.D.S. University, Ajmer, Mr. Shrawan Kumar, Lecturer in Biology and B.Sc.students of govt. college Sheoganj and local communities . With the help of them many Valuable species have been reported which included *Plumbago zeylanica, Diospyros melanoxylon ,Grewia asiatica, Spermadictyon suaveolens, bacopa monnieri, Ariseama costatum, Sarcostemma acidum, Melhania futteyporensis, Canscora diffusa, Ampelocissus indica, Adiantum capillus-veneris, Equisetum ramosissimum, Plagiochasma appendiculatum fig.01* etc. Besides these, invasion of few species of weed was also reported which included *Ageratum conyzoides,Cyathocline purpurea, Limnophila heterophylla, Xanthium strumarium, Lantana camara var. aculeata* etc. Therefore, there is still a great potential to discover more about medicinal and aromatic plants and also urgent need to overcome the impact of weeds and grazing activities in this ecosystem by which religious value of place and tremendous potential of valuable plants can be protected for future."

Key Words: Medicinal plants, Floristic composition, Garasiya, Scouring rush,Weed Invasion, Religious value.

01.INTRODUCTION: Har-Gange is a holly place lies in South-Western Aravali range near Ratamahaveer Jain temple in Bali tehsil of Pali district, Rajasthan.The region is dominated by Garasiya tribe who has been traditionaly utilising medicinal plants in curing of various ailments and aromatic plants in cultural, religious, ritual ceremonies etc. The tribal people are mostly depend on Agriculture and forest wealth such as forage grasses for their cattle & livelihood. The place has a long history about origin of holly water sream Ganga which also known as Har-Gange. The holly water stream originates from base of a top hill where Goddess Hingalas temple is located and another stream originates from temple Bheru, which finaly merges into main stream and flows downward in a 2.5 km long zig-zag stony path. There also present a lord Shiva temple at down stream. The angiosperm species reported in water stream are *Adiantum capilus-veneris, Equisetum ramosissimum fig.03, Bacopa monnieri, Phyla nodiflora fig.02, Cythocline purpurea fig.06, Limnophylla heterophylla fig fig.07.* etc. The chief vegetation is dominated by deciduous tree like *Lannea coromendelica, Boswellia serrata, Wrightia tinctoria, Helicteres isora, Sterculia urens* with few scattered form of *Diospyros melanoxylon, Madhuca indica, Mangifera indica, Ficus arnottiana etc.*



Map sowing location (☆) of the study area during investigation

02.MATERIAL&METHOD : The present investigation attempts were made during seasonal visits from 2013-14 to 2018-19 which reveals that the region has a great potential of medicinal and aromatic plant species of angiosperm as well as lower groups also. During survey, with the help of regional flora, plant specimens, e-flora content, reference books etc. ,we identified many plant species but many more still to be identified yet. A list of plants belonging to various families found in Har Gange was prepared .Identification of plant species and Information about local name were generated with the help of local Garasiya man and my research fellows. Information about medicinal and aromatic plants which are used in traditional medicine were also collected by local tribal Vaidhyas, temple Sadhus and villagers .But now, due to prolonged drought conditions, enchroachment and overgrazing by cattle and plastic garbage,now a days many species are facing threats.

Check List of Plant Species Reported During Survey-

S.No.	Name of Species	Vern.Name	Family	Habit/Medicinal Properties
01	Hibiscus vitifolius Linn.	Wild Hibiscus	Malvaceae	Erect herb
02	Sida cordifolia Linn.	Bala	Malvaceae	Erect herb, as immunity boosting tonic , as aphrodisiac
03	Sclerocarpus africanus Jacq.		Asteraceae	Branched herb
04	Eclipta alba (Linn.) Hassk	Bhringaraj	Asteraceae	Prostrate herb, aspurgative, hairproblem, as liver tonic
05	Boswellia serrata Roxb.	Salar, ulatkambal	Burseraceae	Large tree , gum is used in arthritis
06	Madhuca indica J.F.Gmel	Mahua	Sapotaceae	Large size tree, dried petals are used in Bone fracture
07	Canscora diffusa (Vahl) R.Br.	Kilwar	Gentianaceae	Small brached herb found in moist surface
08	Butea monosperma (Lam) Taub.	Palash, Dhak	Fabaceae	Medium size tree, Dried petals in diarrheoa and gum in west pain
09	Sarcostemma acidum (Roxb.) Voigt.	SomLata	Asclepiadaceae	Hanging climber, stem extract used in asthma, gastric problem
10	Melhania futteyporensis Munro ex Masters in Hook.f.		Sterculiaceae	Erect herb
11	Arisaema costatum	Telia Kand, Agni Chatta	Araceae	Bulbous aroid

12	Spermadiction suaveolens Roxb.	Gandhela, Padela	Verbenaceae	Aromatic shrub, stem bark in scorpion bite
13	Mallotus philippensis Muell.	Sinduri tree	Euphorbiaceae	Medium size tree
14	Wrightia tinctoria R.Br.	Khirni	Apocynaceae	Medium sized tree
15	Anisomeles indica (Linn.) Kuntze	Kala Bhangra	Lamiaceae	Erect branched herb
16	Anisochilus carnosus (L.f.) Wall.	Panjiri ka patta	Lamiaceae	Erect small herb, plant juice in liver disorders
17	Physalis minima Linn.	Rasbhari	Solanaceae	Medicinal herb, fruit pulp in blood purification
18	Ocimum gratissimum L.	Ram Tulsi	Lamiaceae	Branched herb, Leaves as anti-oxidant , seeds as energy source
19	Plumbago zeylanica Linn.	Safed Chitrak	Plumbaginaceae	Semi erect shrub, roots used in cough
20	Dyrophytum indicum	Lal Chitrak	Plumbaginaceae	Small shrub, stem bark in ear ache
21	Helicteres isora Linn.	Marod Fali	Sterculiaceae	Shrub, dried fruit in stomach ache
22	Phyla nodiflora (Linn.) Greene	Matsya Gandh	Verbenaceae	Prostrate rooted herb, root is used in gastric troubles & as antibacterial activity
23	Bacopa monnieri (Linn.) Pennel	Brahmi	Scrophulariaceae	Highly prostrate herb, whole plant as brain tonic
24	Equisetum ramosissimum Desf.	Scouring Rushes	Equisetaceae (Pteridophyte)	Erect branched herb
25	Adiantum capilus-veneris	Walking Fern, Jalbutti	Pteridaceae (Pterodophyte)	Prostrate herb, decoction of dried leaves are used in reduce body heat
26	Riccia discolour		Ricciaceae (Bryophyte)	Thalloid Liverwort
27	Plagiochasma appendiculatum		Aytoniaceae (Bryophyte)	Thalloid, Liverwort
28	Cayratia trifolia Linn.	Fox-grape	Vitaceae	Lina,roots are used
29	Cissampelos pareira Linn.	Velvet leaf	Menispermaceae	Lina,leaves in chronic ulcers and skin disease
30	Arundo donax	Narhal	Poaceae	Tall grass
31	Typh aungustifolia Linn.	Small Reed Mace	Typhaceae	Perennial herb
32	Diplocyclos palmatus (L.) Jeffry syn.Bryonopsis laciniosa	Shivalingi	Cucurbitaceae	Much branched climber,seeds are used in female infertility
33	Sesamum mulayanum Nair	Jangli Teel	Pedaliaceae	Erect herb
34	Sida acuta Burm.f.		Malvaceae	Perennial herb
35	Enicostema axillare	Nag jivah	Gentianaceae	Small herb

36	Blepharis maderaspatensis (L.) Heyne ex Roth		Acanthaceae	Suffrutescentherb,usually procumbent, decoction of leaves with sheep milk are used in skin disorder
37	Apluda mutica L.	Royal,Mauritian grass	Poaceae	Forest (rainy season) grass
39	Cardiospermum halicacabum L.	Ballon Vine ,Kapalphodi	Sapindaceae	A Climber
40	Wrightia tinctoria (Roxb.) R.Br.	Dudhi	Apocynaceae	A medium sized tree
41	Cucumis sativus var.hardwickii (Royle) Alef.	Alwadi	Cucurbitaceae	Climber,fruit is edible
42	Cassia fistula L.	Amaltash,Karmala	Fabaceae	Medium sized tree, Fruit pod used as purgative
44.	Elytraria acaulis Lind.		Acanthaceae	Stemlessherb, therapeuticuse, antiinflmmatory activity
45	Tephrosia strigosa (Dalzell) Santapau	Sarphunka	Fabaceae	Small herb
46	Rungia repens (L.) Nees	Parpata	Acanthaceae	Small herb, anti-pyretic, diuretic
47	Ageratum conyzoides L.	Goat Weed	Asteraceae	Seasonal Toxic weed
48	Limnophila heterophylla (Roxb.) Benth.		Plantaginaceae	Aquatic Weed

Photographs of plants taken during investigation from Har-Gange

Fig.01 Plagiochasma appendiculatum

Fig.02 Phyla nodiflora (Matsya Gandh)

Fig.03 Equisetum ramosissimum

Fig.04 Rungia repens

Fig.05 Spermadictyon suaveolens

Fig.06 Cyathocline purpurea (Semi-aquatic Weed)

Fig.07 Limnophila heterophylla

Fig.08 Anisomeles indica (Kala Bhangra)

03.RESULT&DISCUSSION: Floristic study of Har-Gange shows that there is a urgent need to protect the rare and endangered species of some medicinal plants of this ecosystem. This can be done through making positive efforts to control pollution ,removal of toxic weeds such as Lantana camara , Xanthium strumarium, controlling overgrazing activities and planting more saplings of tree species of angiosperm in open and degraded areas for the future and also through spreading general awareness among people who believe in divine power of holly Ganga stream .

04.CONCLUSION: After reporting of many species of valuable medicinal and aromatic plants in Har-Gange region,we found that there is still a great potential to discover more valuable information about plant genetic resources as well as ethnobotanical aspects. There has been increasing impact of weeds, grazing activities and plastic pollution which can impart harmful effects on growth and reproductive processes of threatened plant species. Thus,by the help of local people, traditional forest dwellers and creat more scientific temperament among students, spead general awareness among local societies about religious value of the divine place, Plant diversity can be protected for the future.

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06.References:

1. Bandari M.M. (1990). Flora of Indian Desert, (Scientific publishers, Jodhpur)

2.JainS.K., medicinalpalnts and their uses. NBT, 1968.

3.Naik V.N. Identification of common Indian medicinal plant, Scientific publishers (INDIA), Jodhpur 2004

4.MeenaKL, Yadav BL (2010).Some traditional Ethnomedicinal Plants of Southern Rajasthan. Indian Journal of Traditional Knowledge.

5.KatewaSS, Choudhary BL, Jain A (2004).Folk herbal medicines from tribal area of Rajasthan ,India , 92 (1)

6."Plumbago zeylanica Linnaeus.Sp.Pl.I:151,1753" Flora of North America e flora .org. Retrived 2011-06-30.

7. Puri, G.S. & Jain S.K. (1958) (Abst.) Flora of the Aravalli Hills at Mount Abu Proc. Indian Sci., Cong. III.

8. Hutchinson J. 1959 ; Families of the Flowering Plants 2nd ed.vol.1-2, London.

9.Panday R.P. & Shetty , B.V. 1984 and contribution of the flora of Pali district, Rajasthan.

10.Shetty BV.SinghV. Flora of Rajasthan,II Botanical Survey of India. Calcutta 1987.

11.Shetty BV.SinghV. Flora of Rajasthan ,II Botanical Survey of India.Calcutta 1993.

12.Sharma N. the flora of Rajasthan, Aviskar Publishers Jaipur 2002.

13. Sharma S.K.,Katewa S.S., Bhatnagar C.New record of plants from Rajasthan, Zoos.Print Journal .2005;20(9) :1984-85.