

# Traditional Practice of Medicinal Plants of Euphorbiaceae Growing in Rural Pockets of Sub- District Uklana Mandi (Hisar), Haryana, India

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**Background:** Haryana is northern state of India with power of rural population (65.12 percent) that relies on agriculture and domestic animals for its economy and social welfare (Singh and Pal, 2018). It has hot semi-arid type climate with average temperature of 24.9° C and annual rainfall 653 mm (en.climate-data.org.). Main cultivated crops of study area are cotton, mustard, millet, vegetables, legumes etc.

**Methods:** A field study was completed in January 2020 in two villages i.e. Parbhuwala and Budhakhhera of Tehsil- Uklana Mandi of district Hisar. Ethnomedicinal information such as vernacular name, therapeutic uses, plant part used, herbal formulation, mode of application has been collected using a well-structured proforma.

**Findings:** The study led to documentation of 9 plant species belonging to Euphorbiaceae family being used to treat 26 human ailments. Leaves were most dominantly used plant part for all reported species. From collected reports it has been concluded that euphorbiaceous plants are widely used to treat skin ailments and gastrointestinal disorders.

**Conclusion:** Conservation and protection of declining plant species are urgent need and which is well served by documentation of hidden and existing traditional botanical knowledge. The present study will provide important information regarding medicinal description of plants and helps in sustainable maintenance of biodiversity at local level.

**Keywords:** Ethnobotany, Herbal formulations, Rural Pockets, Traditional knowledge, Hisar, Haryana.

## Introduction:

The traditional medicinal history of cultural practices and policies among South East Asian countries (i.e. India, China, Thailand, Singapore and Bangladesh etc.) plays a critical role in conservation and sustainable maintenance of medicinally important plant diversity. According to WHO report (2005) a total 75 percent of global population is still dependent on plant products for their primary necessities. Nearly, 21,000 plant species are used for healthcare purpose worldwide. Approximately,

2500 plant species, 1000 genera and 155 angiospermic families are used as alternative and complementary medicines in India (Yadav et al., 2006; Sujatha, 2020).

The scientific description of internal medicines, surgery, diagnosis of diseases, methods of formulations, mode of application, precautionary measures, beneficial and harmful effects of plant based natural products are found in ancient medicinal literature (i.e. Yajur-Veda, Rig-Veda, Sam-Veda, Atharva-Veda, Charaka Samhita, Sushruta Samhita, Bela Samhita, Ashtanaga Sangraha, Ashtanaga Hridaya, Madhava Nidhana, Bhava Prakasha, Sarngadhara Samhita) in the form of "Shlokas" (Swathi and Rao, 2016; Sen and Chakraborty, 2017).

Family Euphorbiaceae (Spurge family) (was named after king of Mauritania- "Euphorbus") comprises of nearly 7500 plant species belonging to 300 genera, consisting of monoecious, dioecious, wild, cultivated, herbs, shrubs, trees and vines as major plants groups (Simpson, 2010; Mwine and Damne, 2011). The economically important plants i.e. *Ricinus communis*, *Jatropha curcus*, *Hevea brasiliensis*, *Manihot esculenta*; ornamental plants like *Euphorbia pulcherrima*, *Euphorbia esula*, *Triadica sebifera*; medicinal plants such as *Acalypha hispida*, *Croton tiglium*, *Euphorbia hirta*, *Euphorbia prostrata*, *Euphorbia tirculli*, *Euphorbia nivulia*, *Euphorbia pepulus*, *resinifera*, *Euphorbia royleana*, *Phyllanthus niruri* etc. belongs to spurge family (Islam et al., 2019; Johari and Kumar, 2020; Kasrina and Zukmadini, 2021).

Realizing denudation and extinction of plant diversity, remedial steps were taken forward to record, document, conserve, sustainable maintenance and explore the plant based knowledge in studied sites.

## Material and Method:

A total of 100 people volunteered for the interview and 60 informants were screened out of the total interviewees who provided relevant information. Ethnobotanical information regarding medicinal usage of Euphorbiaceous plants was collected from people above 20 years of age. Randomly chosen, 50 people were examined from two villages of district Hisar

i.e. Budhakhera and Parbhwal. Socioeconomic data on age, sex and educational qualification of Informants had also been collected. Demographic details of studied sites and percentage proportion of informants are given in Table 1. Community interactions photographs of survey are given in Figure 1.

The Ayurveda-acharya, hakim, traditional practitioners and aged people were given special consideration during as they have vast traditional knowledge regarding herbal formulations. The informants were categorized into groups i.e. age group, sex, qualification group. Reported plant species that inhabitants have been using for healthcare needs were identified and authenticated using websites; International plant name index, The plants database, The plant list, The plants of world online, Flowers of India, National medicinal plant board of India, The Kerala plants, The south-eastern flora and some research papers. Collected ethnobotanical information of reported plants also listed in Table 2



Figure 1: Community Interactions Photographs of Ethnomedicinal Survey

Results:

Table 1: Demographic Details of Villages and Informants

Sr.no	Selected Attributes	Percentage Proportion of Informants	
		Parbhwal	Budhakhera
1.	Total Informants	60	40
2.	Head of Villages	Balinder Kaur	Ramkumar
3.	Infrastructure	Dispensary	Primary Health Centre
4.	Geographical co-ordinates	Latitude 29°48'77" N	29°50'20" N
5.	Informant's Groups		
	Longitude	75°9'042"E	75°8'553"E
	Male	77.78	79.17
	Female	22.22	20.83
	20-40 years old	5.56	16.67
	40- 60 years old	8.33	8.33
	60 and above age	86.11	75
	Illiterate	83.33	62.5
	Literate and Below	11.11	20.83

Table 2: Ethnomedicinal Uses of Reported Plant species of Euphorbiaceae family

Sr.no.	Botanical name	Local name	Plant part used	Formulation	Mode of Application	Treated Ailments/ Diseases
1.	<i>Croton bonplandium</i> Baill.	Jamalghota	Seed	Oil	Oral	Constipation
			Leaves or Stem	Ash/Powder	Topical	Skin ailments, Scabies, Allergy
2.	<i>Euphorbia hirta</i> L.	Dudhi	Leaves	Poultice	Topical	Skin ailments, Itching, Inflammation, Ringworm
			Whole Part	Extract	Oral	Typhoid
			Whole Part	Decoction	Oral	Asthma, Pneumonia, Cough, Diarrhea
3.	<i>Euphorbia prostrata</i> L.	Dudhi	Whole Part	Fresh Juice	Oral	Diarrhea
4.	<i>Euphorbia pulcherrima</i> Willd. Ex. Kottz.	Lalpatta	Aerial Part	Latex	Massage	Arthritis, Rheumatoid
5.	<i>Euphorbia royleana</i> Boiss.	Dandathor	Apical Part	Latex	Topical	Skin ailments i.e. allergy
6.	<i>Phyllanthus asparulatus</i> Hutch.	Bhumi Amla	Leaves	Juice	Oral	Stomach ache, Jaundice
7.	<i>Phyllanthus emblica</i> L.	Amla	Fruit	Pickles, Juice, Raw	Oral	Body weakness, eyesight, night blindness, gastrointestinal disorders, vomiting, cough,
8.	<i>Putranjiva roxburghii</i> Wall.	Putravati	Leaves and fruit	Tender and fresh	Oral	Uterus weakness, pyrexia
9.	<i>Ricinus communis</i> L.	Arandi	Leaves	Gentle Warmed	Tied	Arthritis, Rheumatoid, Edema, Swelling, Pain, Sprain feet, Menstrual cramps
			Seed	Oil	Massage, Oral	Skin ailments, burnt part, Arthritis, Rheumatoid, Edema, Swelling, Pain, Constipation

Discussion:

As per demographic details, male, elders and illiterate informants shared more traditional knowledge than other groups. In the present study, a total 9 plant species of Euphorbiaceae family have been reported to treat 26 human ailments. Reported plants have also been mentioned by previous published work (Panghal et al. 2010; Yadav and Bhandoria 2012; Kaur and Vashistha, 2014; Parul and Vashistha 2015; Singh et al. 2015; Urana, 2015; Singh, 2016; Lal and Groach 2016; Singh et al. 2016; Parul et al. 2017; Ashish, 2018; Rani, 2019; Gupta and Malhotra, 2020; Kumar and Khurana 2020).

Percentage usages of reported plants' species in terms of types of formulations were; fresh form- 44.44 percent, extract, oil and latex- 22.22 percent each, decoction, poultice, ash and powdered - 11.11 percent each. Percentage usage of reported plants' species with regard to mode of administration were; orally-77.78 percent, topically -44.44 percent, massage - 22.22 and tied -11.11. Leaves were most dominantly used plant part among reported species.

### Discussion:

Nearly 75 percent of total informants gained traditional knowledge from their parents, grandparents, neighbors and relatives. It has also been observed that older generation have more experience based knowledge than younger one. Due to rapid changing infrastructure of society at different level, ethnobotanical information is under threat. Excessive utilization of wild flora results in disturbance of local ecosystem of concerned area.

Therefore, there is an urgent need to record the hidden and vanished ethnobotanical information and generate awareness among rural people regarding sustainable maintenance of plants. The preliminary data presented in this paper need more authentications using pharmacological investigation. The collected information will provide a document of indigenous knowledge of euphorbiaceous plants which further can be help in pharmacology and pharmaceutical studies.

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