Vol. 4/1 (2004) 73 - 76

JOURNAL OF NATURAL REMEDIES

Medico-ethnobotanical uses of *Phyllanthus fraternus* Webst. (Family- Euphorbiaceae) from western Uttar Pradesh, India

A. A. Khan, A. V. Khan

Department of Botany, Aligarh Muslim University, Aligarh- 202 002 (India).

Abstract

Objective: Present study reports ethnomedicinal uses of *Phyllanthus fraternus* as collected from Aligarh, Badaun, Bulandshahar, Farrukhabad and Hatharas districts of Western Uttar Pradesh. Materials and methods: Data were gathered by interviewing local medicine men in rural areas of the districts surveyed. Results and discussion: A total of twenty five claims are recorded. A new term "Ethnophyto-morpho-pharmacology" to describe the ethnomedicinal uses of different morphological plant parts is coined and introduced.

Key words: *Phyllanthus,* ethnomedicine, western Uttar Pradesh.

1. Introduction

Ethnomedicobotany has, of late, emerged as a major area of research among plant sciences. There are four common approaches of research in this discipline (a) exploration of a geographically or politically defined area (b) investigation into the claims pertaining to a particular taxon (c) investigation into the claims pertaining to a particular disease or condition and (d) study of the ethnobotany of a tribal community and local traditional medical practitioners. Each of these approaches has yielded valuable results. Investigation into the ethnobotany of a particular taxon has highlighted the diversity of ethno-medico-botanical claims of a large number of taxa in India [1, 2, 3, 4, 5, 6] and abroad [7, 8, 9, 10, 11, 12].

Family Euphorbiaceae is known to have some very important medicinal and ethnomedicinal plants [13,14]. Recent publications are indicative of great medicobotanical potential of this family [15].

During the present study in five districts of Western Uttar Pradesh [16] some interesting and novel claims pertaining to *Phyllanthus fraternus* Webster ("*Bhui-amla*") were gathered. These claims are reported here in order to augment the existing knowledge of ethnomedicobotany of Euphorbiaceous taxa.

2. Materials and methods

Important features of the study area have been discussed elsewhere [17]. In the study area traditional medicine is practiced by local medicine-men or women healers, popularly known as '*Vaidyas*' (male) or '*Daiyas*' (female). Because *P. fraternus* is found abundantly in rainy season, therefore, ethnobotanical data were gathered by interviewing these healers during the period from August to October of the years 1999-2001.

Detailed information was obtained on identity of the plant, recipe prescribed for a particular disease or condition, duration and mode of administration and food restriction, if any, during the course of treatment. The word "meals", unless specified otherwise, refers to lunch and dinner. Attempt was made to check the veracity of claims by contacting actual beneficiaries; however it was not possible in all cases as women patients often tended to evade such enquiries.

In the observations section each entry consists of the name of disease or condition followed by recipe and mode of administration. Already documented claims are not included in this communication. Voucher specimens eb 57 (Aligarh), eb 299 (Badaun), eb 377 (Bulandshahar), eb 99 (Farrukhabad) and eb 191 (Hatharas) are deposited at the Herbarium of Department of Botany, Aligarh Muslim University, Aligarh.

3. Observations

Asthma: Shade dried whole plant is burnt to ash, mixed with fresh extract of same species and allowed to dry in shade. Two g dried mixture is administered orally twice a day for two months.

Amenorrhea : Ten ml fresh plant extract mixed with 70.0 ml whole plant decoction of "*Punarnava*" (*Boerhavia diffusa* L.) is administered orally after each meal during two consecutive menstrual cycles.

Anemia: Ten ml whole plant decoction mixed with 2.0 ml fresh plant extract of " *Punarnava*" is given orally after each meal for 21 days.

Burns: Fresh whole plant paste is applied externally and also 5.0 ml fresh plant extract is given orally.

Burning micturition: Twenty ml fresh whole plant extract is given orally before retiring to bed for 21 days.

Burning sensation in body: Twenty-five ml fresh whole plant extract is administered with 250 ml water after each meal for seven days.

Chronic wounds: Fresh root paste is applied externally.

Cough with expectoration: Two g powder of shade dried plants is mixed with honey and is administered orally for seven days.

Chronic pyrexia: Twenty ml fresh whole plant extract along with three seeds of "*Kali mirch*" (*Piper nigrum* L.) is given once a day for 21 days or till the patient recovers fully.

Dysmenorrhoea: Ten ml fresh whole plant extract is given orally once a month for three consecutive months.

Diarrhoea: Ten ml fresh leaf extract mixed with 2.0 g common salt (*sodium chloride*) is given 5-7 times a day for three days.

Fever: (a) Twenty-five ml whole plant decoction is given orally twice a day for fourteen days. (b) Ten ml fresh whole plant extract is mixed with 10 ml leaf decoction of "Neem" and administered orally twice a day until cure.

Fever with chill: Five ml whole plant decoction is given orally five times in a day for seven days.

Intermittent fever: Twenty ml fresh whole plant extract along with five chopped leaves of

"Neem" (*Azadirachta indica*) is given thrice a day for 21 days.

Gonorrhoea: Five g powder of shade dried whole plant along with 2.0 g "*Dalchini*" (bark of *Cinnamomum zeylanicum*) and 2.0 g seeds of "*Chhoti elaichi* (*Elattaria cardamomum*) is administered orally once a day for forty-one days.

Inflamation of joints: Five ml fresh plant extract is given orally thrice a day for forty days.

Influenza: Ten ml root decoction is given orally thrice a day for seven days.

Leucorrhoea: (a) Twenty-five ml whole plant decoction along with 250 ml un- boiled cow milk is given before each meal for fifteen days. (b) Ten ml whole plant decoction is administered orally twice a day. The treatment should be continued until cure. Consumption of spicy food is not allowed during the course of treatment.

Menoschesis: Thirty ml whole plant decoction is given orally twice a day for three months.

Metrorrhagia: Five ml whole plant extract is given orally twice a day for three months.

Ostomatitis: Thirty g freshly chopped plant material is soaked overnight in 150 ml water and strained. Three ml of the filtrate is given orally thrice a day for five days.

Pain in joints: Ten ml whole plant extract is administered orally twice a day until cure. Consumption of rice is not allowed during the course of treatment.

4. Results and discussion

There is a strong reciprocal relationship between ethnobotany and biodiversity. Former's dependence upon the later is well known. There are three elements of biodiversity conservation (a) save (b) study and (c) use (18). The ethnobotanical studies contribute to second and third component and their outcome attempts to fill the gap in understanding the utility of biodiversity to humanity. It strives to answer the often asked question 'why to conserve the biodiversity'?

This communication records twenty five new or little known claims of use of *Phyllanthus fraternus* in traditional phytotherapy. Ethno-phyto-morpho-pharmacological (Ethnophyto-morpho-pharmacology- a term coined to denote the use of different morphological plant parts in ethnomedicine) analysis revealed that twenty two claims made use of whole plant, two claims were based on root while only one claim prescribed the use of leaves. Fourteen recipes utilize the *P. fraternus* plant without any secondary ingredient. Remaining eleven recipes use various additives of organic or inorganic origin.

The rationale behind the use of some secondary ingredients may be explained on the basis of known medicinal properties of the admixture. For example, for treatment of anemia a combination of *Phyllanthus fraternus* and *Boerhavia diffusa* is prescribed. There is no report on single use of *P. fraternus* in treatment of this disorder.

However, this species is known for its hepatoprotective properties. *B. diffusa* on the other hand is known to cure anemia [13]. It, therefore, appears that combined use of these two species not only ameliorates anemia but also keeps the liver in a healthy state. Since, liver dysfunction may lead to anemic condition hence, this line of treatment aims to eliminate a major cause of anemia.

Other secondary ingredients like Sodium chloride or *Azadirachta indica* may either modify the effect of primary drug or may give rise to wholly new more potent bioactive compounds [19].

Phyllanthus fraternus is reported to possess following chemical constituents—phyllanthin,

hypophyllanthin, niranthin, nirtetralin, phyltetratralin, kaempferol- 4- rhamnopyranoside and erio dictylol – 7- rhamnopyranoside etc. [20] Alcoholic extract of leaves has been shown to possess anti fungal properties.

However, probably no study on antibacterial activity of this plant has been conducted. Some medicobotanical claims documented in this communication, for example, use in treatment of ostomatitis, cough and wounds etc. are suggestive of presence of antibacterial bio-compounds in this species. Such studies are immediately called for discovery of new anti bacterial drugs.

References

1. Jain SK, Bannerjee DK. (1974) *Economic Botany* 28: 38-42.
2. Mishra R, Dixit RD. (1973) *J. Res. in Indian Medicine* 8: 89-91.
3. Pushpangadan P, Sharma AK, Rajasekharan S. (1995) In: Pushpangadan P (Ed.) *Glimpses of Indian Ethnopharmacology* 26: 137-145.
4. Shah NC, Kapoor LD. (1977) *Indian J. Pharmacol.* 28: 155.
5. Sharma PK, Kaul MK. (1992) *Fitoterapia* 64 (5) : 467- 468.
6. Upadhyae AS, Kumbojkar MS. (1998) *Ethnobotany* 10 (1&2): 38-41.
7. Austin DF. (1998) *Economic Botany* 52 (4): 412- 422.
8. Candler RF, Harper SN, Harney MJ. (1982) *Economic Botany* 36: 203-223.
9. Lev-Yadun S, Abbo S. (1999) *Economic Botany* 53 (2): 217-219.
10. Sheldon S. (1980) *Economic Botany* 34: 376-390.
11. Zeneveld JS. (1959) *Economic Botany* 13: 89- 131.
12. Zepeda C. (1999) *Economic Botany* 53 (2) : 221-223.
13. Jain SK. (1991) *Dictionary of Indian Folk Medicine and Ethnobotany.* Deep Publications: New Delhi.
14. Dastur JF. (1962) *Medicinal Plants of India and Pakistan.* Taraporevala Sons & Co. Bombay.
15. Girach RD, Aminuddin AM, Brahman M. (1998) *Fitoterapia* 69 (1) : 85- 88.
16. Khan AV. (2002) Ethnobotanical Studies of Plants with Medicinal and Antibacterial Properties. Ph.D. Thesis, Aligarh Muslim University, Aligarh.
17. Khan AV, Khan AA. (2003) *J. Nat. Rem.* 3/1: 41-44.
18. Anonymous. (1992) Global Biodiversity Strategy—Guidelines for Action to Save, Study, and Use Earth's Biotic Wealth Sustainably and Equitably. WRI, IUCN & UNEP.
19. Prance GT. (1994) In: Derek JC, Marsh J. (Eds.) *Ethnobotany and the Search for New Drugs,* John Wiley & Sons: England.
20. Rastogi RP, Mahrotra BN. (1990) *Compendium of Indian Medicinal Plants,* Vol. 1, Vol. 2 (1991), Vol. 3 (1993), Vol. 4 (1995) and Vol. 5 (1998). CSIR New Delhi, India.