Achyranthus aspera L. in Tribal Medicine

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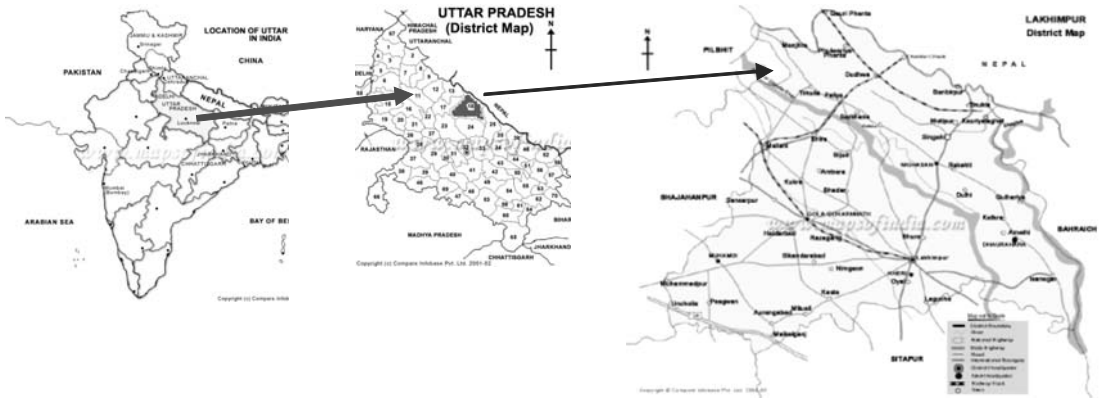
Abstract

Latjîrâ (A. aspera Linn.) is considered as an important drug among the Tharu tribe residing in the vicinity of Dudhwa National Park, District Kheri (U.P.). The plant is famous in the tribal community by the name of *CHHATTÎSÂ* (curing 36 ailments) and is used widely in the local health traditions to treat various ailments by the tribe. It is also known as *Vajrâdantî* for its ability to cure dental problems and its *Dataun* (tooth brush) is very popular in the community. Main uses of the plant by the ethnic group, their classical references from the Classics of Ayurveda and pharmacological activities based on scientific screening are comparatively analyzed here.

Introduction

The sub-Himâlayan Terâi region of Uttar Pradesh is inhabited by two important Scheduled tribes, namely, the *Thârus* and *Bhoxâs*. The Thârus are found in northern districts of this area, viz., *Gondâ, Bahrâich*, Gorakhpur, *Nainitâl* and *Lakhimpur* Kheri. In district Kheri, the tribal people reside in villages situated in the vicinity of Dudhwa National Park and they have immense opportunities towards the interaction with plants occurring in their surrounding vegetation. There are 41 *Thâru* villages in Kheri district (Map 4), occupying an area of 8,194 hectares in the vicinity of Dudhwa National Park. According to the latest census, the *Thârus* have a population of about 26,000.

Map 1 Map 2 Map 3



In-spite of great change in the cultural, social and economic status, even today the Thârus depend upon the outside world for only such articles as salt, kerosene and cloth. They make use of many plant species to meet with their day-to-day needs. They have a self managed system of medicine and make use of various plant species in the health care system.

Tribal Medicine Men, the *"Bharrâ"* have got a very respectful position in the society. He is expected to look after the health of the community and in return the community is responsible for his bread and butter. The 'Bharrâ' collects herbal drugs and uses fresh for the treatment of the common ailments. Some seasonal vegetable drugs are collected and stored by them. Some drugs are imported from the adjoining territory of Nepal. Traditional knowledge is transferred from generation to

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generation by oral folk.

Methodology

A survey on the folklore was conducted between the Dec. 2006 to Jan. 2007 to study the utilization pattern of herbal drugs by the Tribal people in local health traditions, their comparative study with the indications and utilization patterns in one of the worlds oldest codified system of medicine "the Ayurveda" and a search for scientific ground for therapeutic uses in tribal medicine from pharmacological screenings. During the study, a total of 90 plant drugs used by the tribal people were collected and studied. One of them is being discussed here.

Author with Tribal Medicine Man at Dignia Crossing during a Visit to the Dudhwa National Park

Achyranthus aspera L.

Thârû (Tribal) Name: *Chirchirâ, Latjîrâ, Chhattîsâ (NRrhlk).*

HINDI - *LATJÎRÂ.;*

SANSKRIT - *APÂMÂRGA, MAYÛRAKA, PRATYAKPUSHPÂ (CS., SS., AH.); KHAR - MANJARÎ (SS.); SHIKHARÎ (CS., AH); GAURDANDA APÂMÂRGA (AH.SA.1.39).*

Natural Order – Amaranthaceae

PROPERTIES AS PER AYURVEDA:

Classified as *Errhine* (CS.Su.1.83; 4.27; 25); Krimighna, Adjuvant in emetic therapy (CS); Arkadi group of drugs (SS); Stomachic, Digestive, alleviates cardiac troubles (*Hridrujâhara*), tympanitis, indicated in Piles, Abdominal colic, *Apachî* (Cervical lymphadenitis) (BP.Ni.; K.Ni.); Emetic, Blood coagulant, checks *raktâtisâr* (malena) (S.Ni.); Relieves Ringworm, Pruritis, is astringent and *Sransana* (digestive laxative) (D.Ni.; R.Ni.; K.Ni.); bitter, sharp, alleviates dysuria, constipation, skin diseases, earache other colic (Pr.Ni).

Pharmacological Activities

Anabolic activity (Chang & But 1986), Hypoglycaemic (Akhtar & Iqubal 1991), Aqueous and alcoholic extract stimulates gravid & non-gravid uterus in mice (Satyavati 1976), post coital antifertility (Vasudeva & Sharma 2006); anti-implantation activity (Tatke & Gabhe); anti-carcinogenic (Chakraborty et al, 2002), anti-inflammatory (Vetrichelvan, Jagdeeshan 2003), anti-androgenic (Sandhya Kumary et al. 2002); Seeds exhibited hypotensive, spasmogenic and para-sympathomimetic action (Bever 1883); cardiac depressant, vasodilating, respiratory analeptic, diuretic, purgative, slightly antipyretic (Neogi et al. 1970); diuretic action attributed to its high potassium contents (Kapoor & Singh 1966); Aqueous extract of leaves elevates thyroid hormone levels & decreases hepatic lipid peroxidation in male rats (Tahilani & Kar 1966); whole plant extract in-vitro neutralizes Bothrops atrox venum (Nunez et al. 2000).

Therapeutic Evaluation

Clinically, administration of decoction of whole plant to patients of leprosy showed encouraging results in lepra reaction as well as quiescent stage of lepromatous leprosy along with improvement in general health. When administered with specific antileprosy drug, DDS (Diaminodiphenyl sulphone), chances of reaction due to drug became less and rate of improvement was faster (Ojha et al. 1966).

Toxicity: No adverse side effects at dosages (of powdered whole plant) up to 8 gm/kg orally in rabbits (7 days acute toxicity test) (Akhtar & Iqubal 1991).

Discussion

Medicinal uses of the drug by the tribe are similar to various indications described in Ayurvedic classics except few differences. As in tribal medicine, root is tied to the waist and placed on head to induce obstructed labour where as Bangasena institutes insertion of the

root into the vagina and Gadnigrah states the application of leaf paste on the navel, pelvis and vagina. In Tribal Medicine in Rajasthan, Powder of whole plant with warm water is taken in pneumonia (Katewa et al. 2004).

Some therapeutic uses of A. aspera L. by the tribe and not mentioned in Ayurvedic Classics are in habitual abortions, hydrocoel, dental pain, pneumonia in young children. These indications need further evaluation.

It is evident from the observations that most of the uses of the drug in traditional system of the Tharu tribe are classically supported by the Ayurvedic literary references and experimentally proved by the pharmacological screenings. This proves the scientific approach of the tribal people and establishes the tribal system of medicine on scientific grounds.

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Abbreviations

AH – Astanga Hridaya; AS – Astanga Hridaya; BP.Ni. – Bhav Prakash Nighantu; BS – Banga Sena; CD. – Chakra Dutta; Ci. – Chikitsa Sthan.; CS.- Charak Samhita; D.Ni. – Dhanvantari Nighantu; GN – Gada Nigraha; ITDP – Integrated Tribal Development Project.; K.Ni – Kaiyadeva Nighantu.; Ka – Kalpa Sthan; MP.Ni – Madan Pal Nighantu; Pr.Ni – Priya Nighantu; R.Ni. – Raj Nighantu; RRS – Ras Ratna Samucchaya; Sg.S. – Sharangadhra Samhita; S.Ni. – Sodhal Nighantu; SS. – Susrut Samhita; U – Uttar Sthan

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COMPARATIVE UTILIZATION PATTERN OF THE DRUG IN TRIBAL SYSTEM & AYURVEDA:

S.No.	Conditions treated	Ethnomedicinal Uses by the Tharu Tribe	Classical Evidences (Ayurveda)
1.	**Hepatosplenomegaly (*Barbat Rog*)** –	Whole plant/root pounded with water is given.	• Alkali of *Apāmārga* used to treat Splenomegaly (SS.Ci.14.13). • Māshādya Gutikā in Yakrit Plihā Chikitsā (CD.38.15). • Roots of *apāmārga* and *samī* (*Prosopis cineraria L. Druce*), 10 gm pounded and administered with buttermilk alleviates jaundice, oedema and anaemia. (RRS.19.109)
2.	**Dental Pain**	Stem is used as tooth brush.	No Classical Reference
3.	**Pneumonia in Children**	• Leaves are crushed with hand and applied to the chest in pneumonia in children followed by dry fomentation (*Pottali Sek*) with cow dung. • Stem / root cut into small pieces and tied to neck helps in recovery from pneumonia.	No Classical Reference
4.	**Hydrocele**	Root tied to the waist relieves Hydrocele.	No Classical Reference
5.	**Obstructed Labour -**	Root is tied to the waist/placed on head.	• *A. aspera* root along with *Cissampelos pareira L., Gloriosa superba L.*, and *Adhatoda zeylanica Medik*. or any one of them pounded in water, applied below navel and in vagina induces easy labour. (CD.63.12, GN. Mudha Garbha Ci.21, 26). • Root of *A. aspera* introduced and kept in the vagina induces labour easily. (BS.Striroga.233). • Paste of A. aspera root applied on navel, pelvis, and vulva induces labour easily. (GN.6.4.23).
6.	**Habitual abortion -**	Root is tied to the neck.	*Apamarga* used for *Pumsvana Samskar* (Treatment to ensure the birth of a male child). (CS.Sa.8.19)
7.	**Poisoning**	• Root paste is applied in scorpion bite. • Root pounded with water is given in Snake bite / dog bite.	• Snake bite. (SS.Ka.6.12). • In Insect poisoning Agad made from *Apāmārga (A. aspera), Tagar (Valeriana wallichii DC*), and *Kuth (Saussurea lappa C.B. Clarke)*. (SS.Ka. 8.54). • Dog bite – juice of leaves applied on the wound (AS.U.46.64). • Paste of *Apāmārga* applied locally in *Kapilā Lūtā* (Black spider) poisoning (SS.Ka.8.106).
8.	**Pain Abdomen**	Root pounded with water, mixed with sugar is given in pain abdomen.	• Oil cooked with the alkali of *Apāmārga* to alleviate abdominal disorders. It also alleviates constriction in cardiac region caused by *Vāta* due to abdominal disorders (CS.Ci.13.171). • *Apāmārga* root taken with rice water increases digestive power and destroys piles (SS.Ci.6.13). (Sg.S.2.5.19). • *Parināma Shūla* (Duodenal Ulcers) *Chikitsa*. (CD.27.45). • Root of *apāmarga* taken with water destroys *visūchikā* (Cholera). (BP.Ci.6.110).
9.	**Abscess, Wounds & Piles:**	**Abscess -** Leaf paste with a small quantity of salt is applied to the abscess for suppression as well as suppuration.	• Wound labeling drug (SS.Su.36.31); treatment of sinuses (SS.Ci.17.18, 25). • *Angāraka Taila* in *Vrana Chikitsā*. (CD.44.89). • Local application of *Apamarga* paste causes rupture of the abscess. (BP.Ci.47.51).
10.	**Fever**	• Part of stem / root is tied to neck . • Paste of root / leaves is given in fever 2-3 times a day.	• Root of *A. aspera* tied to the waist relieves *Vishama Jwara*. (Periodic fever) (CD.1.227,228 ;GN.2.1.554,607;BP.Ci.1.769). • *Apāmarga* root should be taken empty stomach early in the morning to cure periodic fever. (GN.2.1.639).
11.	**Part Used**	Leaves, root, whole plant.	Seeds, Leaves, root, whole plant, alkali.
12.	**Doses**	For internal administration 5-10 gm fresh leaves/ root/ whole plant.	Juice – 10 to 20 ml.; Alkali – ½ to 2 gms.