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Review on Ethnobotanical Studies on Traditional Medicinal Plants Used to Treat Livestock and Human Ailments in Tigray Region, Ethiopia Ethnobotanical Review on Traditional Plants with Medicinal Values

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Abstract – This paper provides a conglomerated review that emphasises on ethnobotanical data that are available in and around the Aravalli district, India. These plants are endowed with medicinal value and are being traditionally utilized for treating human ailments in Aravalli.This paper intends to explore on the various plant species with ethnobotanical significance via performing a detailed and well-structured review from the data acquired from the occupants (i.e.) natives, tribal communities and elders who are well-versed with the plant species that are grown in their locality. From the inferred analysis, we assess their inherent nature through as largely the source of plant species were from wild vegetation followed by home garden. Herbs were the frequently used plant species followed by trees. Leaf materials were the most used followed by roots. Crushing was the frequently used method of preparation. Mostly the medicine was administered by oral followed by dermal. Large proportions of the medicinal plants were threatened by agriculture expansion followed by drought. Medicinal plants sold in the market were not primary for medicine rather for other purposed (food, spice, beverages). This knowledge concerning with plant's ethno medicinal value could be witnessed to be transferred to its younger generation for thorough utilization of plants which are naturally endowed with rich secondary metabolites.

Keywords – Ethno botany; Medicinal Plants; Gujarat; Aravalli District; Tribal Communities

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INTRODUCTION

India is one of the very rich countries in terms of not only species diversity, but is also blessed with a variety of ecosystems, which preserves a large number of endemic species. However, for sustainable conservation of this biodiversity, there is a need to systematically inventory and manage this important biological treasure. The modern ayurvedic and unani literature have further added to our knowledge regarding plant-based remedies. Amongst Indian state, Gujarat is particularly rich in biodiversity owing to its remarkable diversity in geophysical and climatic conditions. The flora of Gujarat state is represented with about 2300 species of indigenous and naturalized/more commonly grown vascular seed plants, including four gymnosperms, belonging to 921 genera under 162 families.

There exist about 600 scientific contributions in the form of state level Floras (Patel, 1971 and Shah 1978) regional Floras (Bole et al., 1988), research articles published in taxonomic journals and Ph.D. theses submitted to different Universities. In addition, comprehensive accounts such as checklists, compilations of Biodiversity studies (Pandey et al., 2008) accounting the floristic aspects of the state. However, the present study area is not thoroughly subjected for the floristic study in all above said grandiose floristic works.

Ethnobotany achieved a newer perspective, significance and a new dimension today when modern civilization realized that all those plant products that are utilized either in the form of food or as a medicine are the gift of those early men who used those plants for satisfying their hunger and heal their wounds and to know and evaluate its utility for plants often experimented on their own body, sometimes also accidentally suffering due to its usage, such as in the case of some poisonous

plants. The following diagram illustrates 'Tree of Ethnobotany'

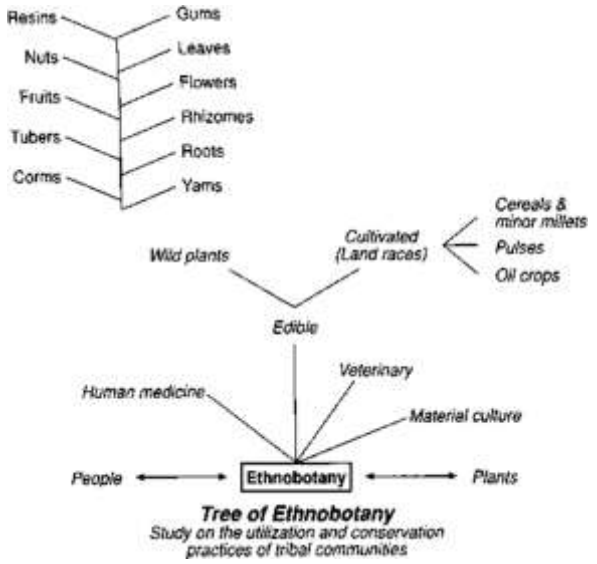

Figure 1: Tree of Ethnobotany (Source: Ravishankar and Selvam, 1995)

This study is concerned with the ways human perception and uses of plants influence the vegetation environment;though this study is purely restricted to Aravalli district, the exploration many of its implications are of general significance to the people of this area.

METHODOLOGY EMPLOYED

Study area

Aravalli district is very rich in floristic and ethnobotanical knowledge. There are scanty ethnobotanical work carried out by Patel (2002) in some parts of the Aravalli district. These people can basically be categorized under a sect which has acclimatized itself to the ecosystem prevailing around. Therefore it was hypothesized that this tribal-rural people has their unique ethnobotanical use.Effort has been made to adopt an interdisciplinary approach by probing into the tribal and rural people and their understanding of their immediate environment that influences their relationship to plant and regulate their uses. The research site taken for the study was in an around Aravalli district.

Observation

At the village and hut level observations as on cultigens, constructions, farm boundaries and fences, agricultural and food gathering, techniques, domestic and day to day chores and articles were taken. Interviews Based on plants were taken in three situations: Plants available as in floristic surveys with a group of tribals accompanying, plants were collected and brought to camp, the headman's hut or a convenient place where tribals were interviewed. Selected and knowledgeable tribals of assorted ages were taken for excursions within forest and ethnobotanical important plants were collected. Individual interviews were also taken on prior collected plants.

Audiovisual aids

Participating in their feasts, festivals, other social events etc. was of great use in collecting information on plants and observing how they are used photographing some of their plant-related activities and some important plants, recording some of their folklores and interviews were also done to document the tribes ethnobotanical life.

Results

The majority of the plant species belong to Poaceae, Euphorbiaceae, Acanthaceae, followed by other families in the following order: Minosaceae, Liliaceae, Solanaceae, Moraceae, Fabaceae, Gesneriaceae, Discoraceae, Rhamnaceae and Celesteraceae. From the table, the results are in general agreement with many ethnobotanical studies (Punjani BL, 2002; Katewa SS, 2003).

Table 1: Ethnomedicinal uses of plant species in Aravalli district of Gujarat

Medicinal Plant name, Family name/local name	Medicinal uses and formulations from local communities/ tribes
***Abrusprecatorius* (L.)** Papilionaceae / Chanothi	Cough and Cold: 10 g of dried root powder mixed in water is consumed two times per day for 2 to 3 days Mouth Ulcer: Fresh leaves are manducated and eaten as the juice is known for treating mouth ulcers
Acacia nilotica*(L.) *Del. Mimosaceae / Deshibaval	Toothache: The tender stem twig is used for 2 to 3 days as a toothbrush Piles: One teaspoonful root juice is given orally 3-4 days to once a day to cure piles. Eye diseases: A cut is made in the root to collect the fluid that oozes out from the root. The fluid is used as eye drops to treat redness of eye and to reduce the

	feeling of burning in the eye.
Aegle marmeloes (L.) / Rutaceae / Bili	**Sunstroke-** Fruit is crushed to obtain juice and mixed with a litre of water and is consumed once a day to reduce body heat **Diabetes- Extracted** leaf juice mixed with a cup of water, is given thrice a day for a couple of weeks to treat hyperglycemia
***Ageratum conyzoides*L.** Asteraceae / Galjibh	Boils- Such fresh lukewarm leaves are applied topically around the affected area, and then bandaged once a day for two-three days to cure tumour in any parts of the body or in the neck
***Alangiumsalvifolium* (L.f.)**	**Fever-** The decoction of the root is consumed **Boils-** Leaves in lukewarm condition is applied on the boils
***Aloe barbadense* L.** Liliaceae / Kuvarpathu	**Piles-** Leaves are crushed and the juice is consumed in the morning for 8-10 days **Hair-care-** The leaf pulp extract is applied on the scalp every night to treat premature falling of hair. A spoonful of leaf juice is orally taken to treat the same.
***Annona squamosa*L.** Annonaceae / Sitaphal	**Injuries-** About 5-7 drops of fresh extracts of leaf is applied on the wound area twice a day to induce healing by controlling bleeding, and disinfecting the wounded area.
Anogeissusserica Brandis / Combretaceae / 'Aendrokh'.	Belly enlargement: Leaf Boiled leaves in lukewarm condition (100 g, approx.) are spread over affected area which was previously applied with ghee/ oil and bandaged with cotton cloth once a day up to two days to get relieve
	from
Argemonemexicana L. / Papaveraceae / Darudi	Skin diseases: The root paste is applied and tied on the affected skin areas to treat ringworm infection and its decoction is used in treating roundworm infections.
***Azadirachtaindica* A. Juss.**	Gynecological problems: 200 g of flowers is crushed and added with fresh leaf paste of 10 leaves and is consumed with water in the morning and night for 2-3 days to regulate excessive bleeding during menstruation. Tuberculosis: A spoonful of seed oil is given twice/ day for a month to treat tuberculosis.
***Bombaxceiba* L.**	Diarrhoea: A spoonful of stem bark juice is taken orally twice a day for upto three days
***Boswelliaserrata* Roxb**	Antidote: 25 g fresh boiled leaves in lukewarm condition spread over affected area and then bandaged once a day for three days to reduce swelling and poisonous effect caused due to insect bite.
Butea monosperma	Antidote: The seed is crushed and made into a paste and spread on the surface of skin twice for a couple of days to ward off the toxicity effect at the site of bite. Dental problem: 1 g of the powdered gum is applied in the achy tooth to ameliorate pain in teeth and gums.
Capparissepiaria L. / Capparaceae / 'Kanther'. Part used: Root	Mumps: Paste of 50 g root of 'Kanther' [*Capparissepiaria* L. (Capparaceae)] and 20 g seed of 'Kalijiri' [*Vernoniaanthelmintica* (L.) Willd. (Asteraceae)]

	is applied topically on cheeks for once a day up to two days to reduce swelling due to mumps.
***Calotropisprocera* (Ait) R.Br** Asclepiadaceae / Nanoaakado	2-4 drops of latex is applied thrice a day in the affected areas for at least two days to remove the stuck thorn from the human body.
***Cassia fistula* L. Caesalpiniaceae / Garmalo**	Headache: Fresh Paste of leaves is topically applied over forehead to get rid of headache
***Citrulluscolocynthis* (L.)** (Kanwar et al., 2006)	**Skin diseases** The paste prepared from fresh root is topically applied on the affected part of skin to ward off fungal diseases (itching, ringworm)
Dichrostrachysci nerea (L.) W. & A. / Mimosaceae / 'Medol'. (Punjani, 2006)	Stem bark Paste is applied topically over affected part on the skin for rupturing and fast healing of the boil. Diarrhoea: Leaf extract mixed with a teaspoonful of fine sugar is consumed orally once a day for to cure diarrhoeal infections.
***Emblicaofficinali s*Gaertn.** / Euphorbiaceae / Aamla	Physical weakness: A teaspoonful of dried fruit powder mixed with equal quantity of honey, is given twice orally for a week to treat physical weakness.
***Euphorbia tirucalli* L.** Euphorbiaceae / Kharsani	Dental problem: Fresh latex soaked Cotton is kept on painful molars or achy tooth to ameliorate gum pain and toothache
***Ficusbenghalensi s* L.** Moraceae / Vad	**Asthma-** A teaspoon of fresh leaf extract is taken along with honey once a day for upto a week to cure asthma.
***Grewiaflavescens* Juss**Tiliaceae / Trambath	**Bone fracture-** Every morning, 200-300 ml decoction of fresh branches/stem is given orally until bone gets normal.
***Holopteleaintegri folia* (Roxb.)**	Skin diseases: The fresh paste of leaves is applied twice on the skin everyday to cure ringworm.
Holostemmaannu larium (Roxb.) K. Schum. / Asclepiadaceae / 'Bhatto'	cough and cold: About 5 cm piece of root is chewed and the juice is swallowed slowly thrice a day for two days to cure
Helicteresisora L. / Sterculiaceae / 'Maradsing'	Filtered fruit mixture is given orally twice a day for 2-3 day to cure diarrhea.
***Kirganeliareticula ta* (Poir.) Baill** / Euphorbiaceae / Kamboi	Diarrhoea- Fresh leaf extract is taken orally once for two to three days Dental problems The tender stem twig is used as a toothbrush.
Leptadeniapyrote chnica (Forsk.) Decne. / Asclepiadaceae / 'Khip'.	Tuberculosis (TB): 500 g of tender stem is boiled with a liter of water. Two teaspoon of cooled filtrate is taken orally twice a day for upto a month.
***Madhucaindica* J.F. Gmel** Sapotaceae / Mahudo	Bone fracture: The flower petals in lukewarm condition is tied over the affected part for a month to treat bone fracture and to decrease inflammation at the site of dislocation.
***Moringaconcane nsis*Nimmo**	About 15 g powdered gum in heated and spread over wounds for inducing healing and preventing pus formation.
***Mucunapurita*Hk.f .** Papilionaceae / Kuvech	**Spermatorrhoea-** A teaspoon of seed powder is taken along with lukewarm milk every morning for two weeks to treat sexual debility.

***Pergulariadaemia* (Forsk.) Choiv**	**Skin diseases-** The fresh latex of the plant is applied topically over affected part on the skin to cure itching and ringworm infections.
***Phyllanthusfraternus* G.L. Webster**	**Diabetes-** 5 gm of leaf is taken and crushed along with a cup of water. The filtrate obtained is given orally once a day for at least two week to cure diabetes.
***Plumbagozeylanica* L.**	Ringworm: The paste of fresh crushed root is topically applied on the infected area once a day.
PterocarpusmarsupiumRoxb.var. Acuminatus. Papilionaceae / 'Biyo'.	A teaspoon of powdered bark is consumed with water every day morning for up to five days to treat menorrhoea
***Prosopischilensis* (Molina) Stunze**/ Mimosaceae / Gandobaval	**Boils-** The paste of fresh leaves is applied topically daily twice to cured over affected part to cure abscess or boils.
***Solanumindicum* L.** Solanaceae / jangliringani	**Dental problem-** The tender stem twig chewed and the juice is swallowed slowly thrice a day until cured to cure toothache.
Syzygiumheyneanum Wall. ex W. & A. / Myrtaceae / 'Makanjambu'.	Bark Paste is applied topically over affected part on the skin to cure wounds.
***Tephrosiavillosa* (L.) Pers**	Boils: The leaf paste is applied topically around the affected area, and then bandaged once a day for two days to cure boils.
Tinosporacordifolia(Wild.) Miers. / Menispermaceae / Galo	Diabetes: One teaspoonful of powdered stem along with water given orally once daily morning for two weeks to cure and control diabetes.
Tridaxprocumbens L. / Asteraceae / 'Pardeshibhangro'	Cut and wounds: Juice of the plant is filled in the fresh wound to prevent pus formation and for fast healing
Tribulusterrestris L. Zygophyllaceae / Gokhru	Pain: About 10 g powdered fruit mixed with 100 ml of water. The mixture is given orally once daily morning for five days to cure backache.
TyphaangustataBory&Chaub. / Typhaceae / 'Ghabajariu'.	Antispetic: Fruit fibers filled in/sprayed over fresh cuts/wounds for fast healing and to prevent septic. Due to this practice flowing of blood stops immediately.
Vernoniaanthelmintica (L.) Willd. / Asteraceae / 'Kalijiri'	One teaspoonful seed powder is administered internally with water once to cure intestinal pain
Vitexnegundo L. / Verbenaceae / Nagod	**Joint diseases**- 10-20 g decoction of flowers (Inflorescence) bud is given orally once daily in empty stomach in early morning for one week to cure swelling and to get relief from pain in the joints caused due to arthritis.
Withaniasomnifera (L.) Dunal / Solanaceae / 'Ashvagandha'.	Pain: One cup of filtrate root decoction is given orally twice a day up to two weeks to cure backache
***Zizyphusnummularia* (Bum f.)** W. & A. / Rhamnaceae	Digestive disorders- The extract of fresh root given orally twice a day until cured to stop vomiting**.**

The above reported ethnomedicinal plants also require a proper chemical, pharmacological experiments and clinical trials for the validation of the traditional claims. The tribal people of Bayad taluka used wild plant species for the treatment of different human ailments like Acne, Ascariasis, urinary problems (Sharma N et al., 2011). Backache, Belly enlargement, Boils, BP, Cough and Cold, Cracks, Diarrhea, Menorrhea, Mumps, Pain, Ringworm, Tuberculosis, Toothache, Wounds etc. These people used about hundreds of different wild medicinal plants for curing various ailments, of

which trees were dominant Herbs, Shrubs, Climbers& Twiners. Root is used in maximum number of applications in different diseases followed by leaf and bark each used in few applications, hence it holds second and third position in plant parts used (Punjani BL et al., 2003; Bhardwaj, M et al., 2011).

CONCLUSION

The above reported ethnomedicinal plants also require a proper chemical, pharmacological experiments and clinical trials for the validation of the traditional claims. It was suggested to document such vital and valuable knowledge for the future generation as this knowledge found to be decline day-to-day. On the other hand, loss of important floral diversity also leads to declining of it. Hence conservation of floral diversity will be an important tool to sustain and carry such important knowledge to the future generation.

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