Ethenobotanical Studies on Climbers of Chotanagpur Plateau Region

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Abstract

Chotanagpur Plateau in Jharkhand state is biodiversity rich in medicinal plants. Flora of Jharkhand is rich and much more diverse as compared to other states. The state possesses about 40% of the total area as forest having rich and diversified flora. A number of herbs, shrubs and medicinal plants, perennial and seasonal both are in abundance found here, to which tribal and local peoples depend for their health care. About 32 tribal communities are found in Jharkhand who depend on medicinal plants for their treatment of various ailments as traditional knowledge of its utilization in health care. Traditional medicinal practioners are the primary health care providers in rural Jharkhand. An attempt has been made with the objective to study and get an idea about the various medicinal plants of climber groups mostly used by peoples of Jharkhand. These medicinal plants are not only used to cure various diseases, but also are grown or cultivated in homes and backyard. All climber parts viz root, stem, leaf, flower & fruits are used in various formulations i.e. lotion, solution, powder, tablets etc. The present study deals with climber, creepers and twiners of Chotanagpur Hatia dist. Ethnomedicinal plants are necessary for treatment of various diseases and production of various medicines. The local people of Chotanagpur use 34 climbers of the vascular plants for medicine, vegetable and fodder. As traditional culture is disappearing fast, the knowledge about the plants wealth is going to lost. For each plant its family, botanical name, vernacular name, common name, local name, English name, flowering period & its medicinal use has been studied as perceived by the local people and recorded. As per the climatic condition these plants are showing their presence in different locations. A total of 34 climbers, creepers and twiner species belonging to 21 families were recorded for the medicinal purposes, among all the families Convolvulaceae were found to be most abundant having 6 species followed by Cucurbitaceae and Menispermaceae.

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1. Introduction

Climbing plants are groups of plants that often show unique horticultural uses because of their beauty-imparting features. As the stems are weak, these plants have evolved various climbing devices in order to support growth and development. This climbing habit is predominantly seen in angiosperms and some members of ferns, and Gnetum is the only representative genus of gymnosperm. Several families such as Convolvulaceae, Cucurbitaceae, and Dioscoreaceae are exclusively climbers, while over 48 species of families like Rubiaceae, Fabaceae, Calastraceae, and Apocynaceae are also of climber types. Besides their aesthetic use, the plants are of high medicinal value as almost all contain pharmaceutically active bio-compounds having. (anti-HIV properties). Many of these plants are widely used in folk and traditional medicines. The prevalence of diseases and high cost of modern Medicare coupled with increasing load of human population across the globe have resulted in overexploitation of plants/climbers with extinction possibilities. A large number of plants including the above have already been endangered. Therefore, a balanced approach is needed in order to preserve germplasm of climbers for future uses in formulating newer pharmaceutical medicine which are derived from plants (Chan, 2015).

The Chotanagpur Plateau is a plateau in eastern India, which covers much of Jharkhand state as well as adjacent parts of Odisha, West Bengal and Chhattisgarh. The Indo-Gangetic plain lies to the north and east of the plateau, and the basin of the Mahanadi River lies to the south. These areas are supposed to be heaven for Ethenobotanical studies (Agumbe, 2004). Plants are remarkable source of valuable substances for human beings. These are showing variation in their habitat as well as their habit. As per climatic condition, the plants are showing their presence in different sites. Plants are essential for healthier life because they provide us medicines, which are both effective and safe, without any side effect. Plants play a vital role in our lives more than animals mainly due to their extraordinary array of diverse class of biochemical's with a variety of biological activities ethnobotanical information on medicinal plants and their uses by indigenous cultures is useful not only in the conservation of traditional cultures and biodiversity, but also for community health care and drug development. The conservation of important and endangered medicinal plants, their conservation and the Ethnomedicinal uses, including climbers is very essential to establish their appropriate utilization (Smith, 2012). The aim of the current research is to highlight the climbers, creepers and twiners of Chotanagpur forest area in Jharkhand. Botanists and local peoples including the Ayurveda, acharyas have still preserved the knowledge about the local medicinal plants. Quite a significant number of surveys and documentation has already been done in different regions of India related to existing status of medicinal plants (Jain S.K. & Mudgal V 1999), (Jain S.K. & Rao R.R.1976). This research work has been carried out in year 2015-18 in Hatia district of Chotanagpur.

2. Methodology

Jharkhand State in India is a very rich center of biodiversity with important hot sports, such as rivers, lakes, streams, spring, steep mountain slopes and road, waste lands, cultivated fields etc. The present study was accomplished to document the Ethnomedicinal data of the useful climbers, creepers and twinerss of Chotanagpur. Survey of the medicinal plant of climber group were carried out at 3 selected side by standard technique and documented. Also, about 150 local people respondents including both male and female (Cultivators, Traders, Hakim & Vaidas) were interviewed. The question about the indigenous uses of climber creepers and twiner plant species were asked. Plants specimen collected from the area were dried, pressed and mounted on herbarium sheets for taxonomical and morphological identification as per the standard norms. For survey and data collection from respondents internationally accepted survey technique has been followed.

3. Results

During the present probe based on ethnobotanical useful climbers, creepers and twiners, a large number of plant were surveyed. The present paper provides inventory of 34 species of vascular plants belong to 21 families were collected from three study sites in the Hatia district and collect data for their local uses peculiarly in medicines. The data collected for various uses of these species is presented hereunder.

The cultivators and local traditional medicine practioners further informed that there are several Potential Medicinal Climbers which are suitable for cultivation under Herbo-Agroforestry System in Jharkhand are *Abrus precatorius L. (Fabaceae), Asparagus racemosus Willd. (Asparagaceae), Caesalpinia bonduc (L.) Roxb. (Caesalpiniaceae), Gymnema sylvestre (Retz.) Schult. (Asclepiadaceae), Hemidesmus indicus (L.) R. Br. (Asclepiadaceae) & Tinospora cordifolia (Willd.) Hook.f. & Thoms. (Menispermaceae) are being grown commercially on small and medium scale by native farmers.*

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Table - 1 List of climbers found in Chotanagpur plateau region (Hatia) year 2015-18.

Sl. No	Botanical/Common/Local Name of the plant surveyed	Taxonomical Status	Medicinal use of the Plant by Local Folk/Vaidya/Hakim
1	*Asparagus racemosus* Willd Wild Asparagus Santa War Sataular	Asparagaceae	The root is bitter sweet emollient, cooling, nervine, tonic, treatment of constipation, stomach ache, and tonic. Juice of chopped roots is given to relive liver problem and weakness.
2	*Cardiospermum halicacabum* L	Menispermaceae	Stem and leaves are used as vegetable. Dried leaves crushed to make tea used for itching of skin. Fresh crushed leaves used on swelling. Leaves, seeds and root are used for rheumatism, stiffness of joints and Snakebite. Seeds are useful for nervous disorders.
3	*Cissampelos pareira* L Velvet abuta But bel	Menispermaceae	Used locally in case of unhealthy sores & used sinuses. It is frequently prescribed in the later stages of the bowel complaints, in conjunction with aromatic it is reported by antilithic (Dymock).
4	Tinospora cordifolia Giloy Gulchi	Menispermaceae	Acidity constipation, cold cough and urine infection working as antioxidant and immunity buster. Stem used in fever, Jaundice & diabetes
5	*Clematis buchananiana* D C Lemon clematis White climber	Ranunculaceae	Climber paste of the roots are used as a poultice to treat swelling caused by inflammation.
6	*Convolvulus arvensis* L Field bindweed, Kharpavogi bel	Convolvulaceae	Used in cough, flue, jaundice and skin diseases. It is also used to the painful joints and swelling

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7	*Ipomoea indicia* Blue dawn flower Blue Morning glory	Convolvulaceae	The leaves are, antimicrobial and anticancer activities. The sap from the crushed leaves is drunk to relieve dysentery.
8	*Ipomoea nil* L Japanese morning glory, Morning glory	Convolvulaceae	The seeds are anthelmintic antifungal, antitumor diuretic and laxative. It is used also constipation.
9	*Ipomoea pes-tigridis* L Tiger's footprint Tiger's paw	Convolvulaceae	Stem and leaves are used for eyes and skin disorders. Fruit with persistent calyx is used in impotency.
10	*Ipomoea purpurea* (L.) Roth Morning glory Ilri bel	Convolvulaceae	Treatment of various disorder.
11	*Ipomoea tricolor* L. Mexican morning glory Kharpavo gi bel	Convolvulaceae	The seeds contain small quantities of the hallucinogen. This has been used medicinally in the treatment of various mental disorders.
12	*Rivea hypocrateriformis* *Midnapore creeper* *Night glory*	Convolvulaceae	Treating skin diseases, cough, headache, Malaria and external uses as burns, Piles and to relieve pain.
13	*Cryptolepis buchanani Roem* & Schult. *Indian Sarsaparilla* *Doodh bel*	Asclepiadaceae	Blood-purifier, alternative, used for rickets in children, in combination with euphorbia microphylla, the herb is used as a galactagogic, its decoction of the stem is used as a supporting drug in paralysis, of the root bark in rheumatism.
14	*Cuscuta reflexa* Roxb. Amarbela, (Akash bel) Neeladhari	Cuscutaceae	Plant decoction is given for rheumatic pain. The local people use its sap to prevent dandruff. The hair also becomes soft and silky. Treat difficulty in urinating, Jaundice, muscle pain and cough.
15	*Dioscorea bulbifera* L Air potato-Wild yam Kaenthi gandaa	Dioscoreaceae	Boiled bulbuls are eaten for food. Bulbils are also used as birth control pill. This content toxic substances and tuber is considered to diuretic and to be a remedy for diarrhea
16	*Diplocyclos palmatus* (L.) Jeffrey Striped cucumber (bryony) Khakhun	Cucurbitaceae	leaves are used against inflammation and impotency, in the treatment of malarial fever. Plant is also used as an antidote to snake bite, roots are used in the treatment of asthma.
17	*Ficus pumila* L. Creeping fig or climbing fig Doda bel	Moraceae	The aerial parts constitute a systematic remedy and blood constituent. They are used in treating chronic dysentery, hemorrhoids, impotence, menstrual disorders, boils and high blood pressure.

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18	*Fragaria vesca* L. Strawberry Kenichoe	Rosaceae	Wild strawberry leaves are mildly astringent and diuretic. The plant is little used medicinally today but it can be taken to treat diarrhea and dysentery. The leaves were used as a gargle for sore throats, and in a lotion for minor burns and grazes.
19	*Gloriosa superba* L Climbing lily Lily	Colchiceae	It is used as ornamental plant. Tubers used in rheumatism, sexual stimulant but very small doses because tubers are very toxic and may cause death.
20	*Hedera nepalensis* K. Koch Himalayan ivy Himalayan	Araliaceae	Leaves are useful for diabetes, cathartic and diaphoretic. Berries are purgative and use to cure febrile disorders.
21	*Helinus lanceolatus* Brandis. Saltbush and orache Chamba	Rhamnaceae	Plant extract is useful for scabies and skin disease. It is also used in herbal medicine as an expectorant and for water retention.
22	*Ichnocarpus frutescens* (L.) R. Br. Black creeper Creeper	Apocynaceae	The roots are sweet, refrigerant, febrifuge, aphrodisiac, alternate, diuretic, demulcent and tonic. They are useful in vitiated conditions of Pitta, burning sensation hyperdipsia, fever, seminal weakness, Cephalalgia and general weakness.
23	*Lygodium japonicum* (Thumb.) Sw. Vine-like fern Boojni / kunji	Lygodiaceae	The plant is used as an expectorant. A decoction of the vegetative parts and spores is used as a diuretic.
24	*Marsilea quadrifolia* L Four leaf/ Clover Sushni	Marsileaceae	The plant is also applied externally in the treatment of snake bites and skin injuries, including abscesses.
25	*Polygonum capaitatum* Buch. Knot weeds Pink head	Polygonaceae	It has antibacterial, analgesic, anti-inflammatory, diuretic, and anti-oxidative properties. It is commonly used to treat various urologic disorders including urinary calculus and urinary tract infections.
26	*Quisquails indica* L. Rangoon creeper, Malti	Combretaceae	Ascariasis, ringworm disease, infant, malnutrition. Fruits and seeds anthelmintic. Seeds soporific also. Ripe seeds roasted and given in diarrhea and fever, also used in rickets. Macerated in oil, seeds used for application in parasitic skin troubles. Seeds yield fatty oil with purgative action.

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27	*Rosa moschata* Herrm Musk rose Pumpkin	Rosaceae	Root extract is aphrodisiac. Flowers with white rice are used as purgative, anthelmintic and digestive disorders.
28	*Rubia cordifolia* L. Manjisha / Indian madder Majith	Rubiaceae	Root extract is aphrodisiac. Flowers with white rice are used as purgative, anthelmintic and digestive disorders.
29	*Solena amplexicaulis* (Lam). Gandhi Creeping cucumber Bun kereli	Cucurbitaceae	The tuberous roots are sour, astringent, thermogenic, appetizer, carminative, digestive, purgative, expectorant and invigorating. The leaves are useful in allergic inflammations and the seeds are used for their purgative action.
30	*Trichosanthes cucumerina* L. var. anguina Wild Snake Gourd Khaakri	Cucurbitaceae	Tender fruit is used as vegetable. Fruit extract is very useful for jaundice and other liver and digestive disorders, headache, fever & skin allergy.
31	*Tylophora hirsuta* Wight Emetic swallow-wory Antamool	Asclepiadaceae	The roots and leaves are sweet, acrid, aromatic, emetic, purgative, expectorant, vulnerary, diaphoretic, stomachic and antiviral.
32	*Vicia hirsuta* L Hairy vetch Nile phalli	Fabaceae	The leaves are edible. It has a high economic importance as green manure and forage, treat in eczema and skin irritations & as an antiseptic.
33	*Vitis jacquemontii* Wild grape Daakh	Vitaceae	Sap of young branches used as remedy for skin disease. Leaves astringent used in diarrhea. Juice of unripe fruits as astringent used in throat infections. Sap of plant is given against foot and hand burning. Vitis sap is used to treat heart disease.
34	*Ampelocissus latifolia* *Wild grape* *Daakh*	Vitaceae	Use for wound healing. Stem bark used in stomach pain and bone fracture, tuberculosis and body weakness

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4. Discussion and Conclusion

Chotanagpur plateau is highly rich in flora Biodiversity. The entire study area is full of variety of climber and creepers and its medicinal plant

wealth is highly valuable. Creepers constitute an important group which are effectively used in therapeutic purposes by local practioners and people. The need of the hour is to conserve these creepers and document its medicinal properties in

order to formulate newer, safer, affordable, herbal medicine for the welfare of the mankind specially the poor and downtrodden this is also a boon for the environmental ecosystem conservation and help the nature in restoring the soundness of worth and its productive system. medicinal plants are of immense importance to mankind and have a vast therapeutic potential as compared to other alternative systems of medicine (Stepp, 2001). The information generated provided data base for availability of raw material for formulation and development of modern medicine based on harvest which may ensure health of the masses by affordable cost and effective treatment.

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