



ETHNOBOTANICAL SURVEY OF MEDICINAL PLANTS IN SIRONCHA REGION DIST-GADCHIROLI (M.H.)INDIA

Botany

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ABSTRACT

The paper aim is to investigate and carry survey on medicinal plants traditionally used by tribal peoples in sironcha regions. Various reports obtained from different local vaidus and some elder tribes and the survey was carried out in March 2021 to June 2021. According to survey over 100's of plants sepecies were used by these tribes as a phytomedicine. A total of 3-4 species of plants used by different tribes in this region for same disease besides this remaining was used for different disease like gond used *Calatropis procera* for snake bite and other tribe using this for removal of teeth which was damaged. According to survey observed that the district headquatre is 212 KM away from this region, due to unaffordable and unreachable condition of modern healthcare service they need to use their traditional knowledge to cure various ailments.

KEYWORDS

Medicinal Plants, Sironcha Region, *Calatropis procera*, Ethnobotany.

1. INTRODUCTION

Man has been using plants from ancient time and research workers are constantly brings to light additional information on the relationship between plants and man. The theme of ethnobotany or traditional botany reveals interrelation of plants and man (Singh, R. *et al.* 2014). Plants are an important source of folkloristics medicine for the treatment of various diseases (Bako, S. *et al.* 2005).

In Gadchiroli district especially in undeveloped areas the available modern healthcare services are either insufficient or unreachable and unaffordable to the majority of people. In addition, due to illiteracy and economic status most of the population is dependent on traditional phytomedicine to cure various ailments. As the country has diverse socioeconomic, ethnic and cultural areas, as well as unique biodiversity and knowledge of indigenous medicinal plants and their use in treating human ailments might thoughtfully be expected (Pankaj, R; Chavhan, *et al.* 2015).

In Maharashtra Gadchiroli is the region where tribal people resides belonging to Gond, Dhamdi, Korku, Madia, Pardhan, Kuvar and lodhi communities. These people have their traditional knowledge pile-up by them through a long series of observation and is transmitted from one generation to another. There is need of assembling data about Ethnomedicinal knowledge of local AyurvedicPractitioners on promising phytochemical from folk medicinal plants for anticancer activity that will test in various experimental models using modern scientific methodologies (Shambharkar, R. B. *et al.* 2017).

The climatic conditions of sironcha regions are extreme with temperature reaching 47.3°C in Summer & 9.4 °C in Winter. The District is blessed with huge forest and mineral resources.

The forests are Predominantly in Etapalli, Aheri, Dhanora, Korchhi, Kurkheda, Sironcha and Bhamragad blocks. The forest are rich in Teak (*Tectonagrandis*), Ain (*Terminaliatomentosa*), Tendoo (*Diospyros melanoxylon*), Anjan (*Memecylo numbellatum*), etc. (V. S. Khonde, *et al.* 2016)

Sironcha is a small tehsil which contribute 128 villages and which is far away from district headquarters about 221 K.M, the way to reach sironcha is difficult, which occupied with long forests and hills but the beauty of nature is wonderful covered with green vegetation. These forests have diverse flora and fauna, In Sironcha region tribes have tremendous knowledge of Medicinal plants and their abilities which studied long before by ancient tribes. The tribes in Sironcha region were isolated so they use their traditional knowledge of plants to cure various ailments. The Sironcha area has huge biodiversity of ethnomedicinal plants and they might be studied by several researchers but some plants which were still not determined yet. Including some endangered plants which extinct in wild e.g. *Cucumaceasia*.

Thus the present study is a small effort to enlist some of those important medicinal plants of the Sironcha region of Gadchiroli district which focuses the ethnomedicinal purpose of those plants by

undertaking the survey of the region, It is need to enlist all the medicinal plants in this particular area so for this I have visited some villages to carry out my project and I have seen many tribes are belongs to Gond tribes community they are using their traditional knowledge to cure several diseases like, throat pain, bones braikage, headache,

AIMS AND OBJECTIVE:

To investigate the presence ethanomedicinal plants and their pharmacological uses in the Sironcha region.

2. REVIEW OF LITERATURE

The term ethnobotany was first coined as early in 1895 by John W. Harshberger to denote the study of plants used by primitive and aboriginal people.

Traditional medicines were organised system of diagnosis and care. It includes, in addition to medicinal plants, the study of food, fibers, dyes, tannins, other useful and harmful plants.

In modern days the ethnobotany has become an interdisciplinary and popular subject. Different branches of ethnobotany, namely Ethnotaxonomy (Brown, 1984) Ethnopharmacology, Ethnoecology (Maheshwari, 1983), Ethnomycology (Manilal, 1981) are initiated in recent times.

About 80 percent of Indians population lives in villages. In Maharashtra some districts like Pune, Nasik, Thane, Dhule, Chandrapur, Gadchiroli etc. are dominated by tribal population. On this subject, number of papers have been published during the last 20 years in various journals.

Sironchataluka present at last region of Maharashtra state and Presence of large no of living tribes, In addition to my personal experience and contacts with tribal people in the area, ethnobotanical information was gathered by making questions from various Vaidyas, and other local tribals.

Several workers was done research this area but it is difficult to enlist all, some researchers like, (Pankaj, R; Chavhan, *et al.* 2015) carried out there research on Ethnobotanical Survey of Markanda Forest Range of Gadchiroli District, Maharashtra, India., (V. S. Khonde, *et al.* 2016) worked on Ethnomedicinal survey of armori, wadsa, kurkheda, korchhi forest range of Gadchiroli District, (Shambharkar, R. B. *et al.* 2017) carried out there research on Ethnomedicinal plants used by tribal people of Gadchiroli Maharashtra for the treatment of Cancer.

Many Researcher like V.S.Kondeet. *al.* 2016, P.S.Jaki, Mahakalkar was carried out there research in this particular area besides this many scientist have recorded to study particularsironcha regions about ethnomedicinal plants. However, this area includes maximum diversity of medicinal plants.

A. V. Setiya. *et al.* 2016, studied on Exploration and documentation of some wild edible plants used by the aboriginals from Gadchiroli District (M.S.) India.

H. Kumar and P. Totawar 2015, carried out their research on Rationale behind Uses of Medicinal Plants by Gond Tribe of Sironcha Tehsil, District- Gadchiroli, M.S., India.

V. J. Tiwari 2016, studied on Rationale Behind Ethnopharmacological Uses of Blumealacera (Burm.f.) DC., (Asteraceae) for piles/haemorrhoids and anal fissures by Madia-Gond Tribe of Gadchiroli District of Maharashtra State, India.

V.K.Mishra *et al.* 2021, Ethnomedicinal applications of forest plants for the treatment of common ailments by Gond and Madia tribes of Maharashtra, India.

About Plants :-

1. *Calatropis procera* (Family:- Apocynaceae)

Pharmacological and Phytochemical constituents:

The leaves and latex from the plant were tested for antimicrobial activities. The bioactive constituents extracted from the leaf and latex were tested against pathogenic organisms (*Escherichia coli*, *Salmonella typhi*, *Bacillus subtilis*, *Candida albicans*, *Aspergillus niger*) using the Agar well diffusion method (Shobowale, O.O. and Ogbulie, N.J., *et al.* 2013). Phytochemical Screening was carried out using standard methods to detect the bioactive compounds like alkaloids, tannins, phenols, steroids, flavonoids, saponins (Trease *et al.* 1989). All parts of the plant have toxic prospective, due to the presence of cardenolides (cardiac glycosides). The latex was found to be richest in cardenolides weight. The important cardenolides found in the plant are voruscharin, uscharidin, uzarigenin, calotroposide, calactin, calotoxin, uscharin, ascleposide, calotropagenin, coroglaucigenin, calotropin, proceroside, proceragenin, and syriogenin (Gaurav Parihar *et al.* 2016).

Antimicrobial Activity:

The antimicrobial activity of the leaf extracts of *C. procera*, the prohibitive effect of extract of latex of *C. procera* against *Candida albicans* was observed by (Meena AK *et al.* 2010 and Quazi S *et al.* 2013) which was found to be active against *Pseudomonas pseudomallei*, a causative agent of melioidosis.

The antimicrobial effect of ethanol, aqueous, and chloroform extracts of leaf and latex of *C. procera* were studied on five bacteria, namely, *Escherichia coli*, *S. aureus*, *Staphylococcus albus*, *Streptococcus pyogenes*, and *Streptococcus pneumoniae* and three fungi: *Aspergillus niger*, *Aspergillus flavus*, and *Microsporium boullardii* and one yeast *C. albicans* using agar well diffusion and paper disk methods (Khairmar AK. *et al.*, 2012).

Antiulcer Activity:

The antiulcer activity of *C. procera* using different in vivo ulcer models was performed. The results of the study shows that it crucially inhibited aspirin, reserpine, absolute alcohol, and serotonin-induced gastric ulcerations in rats and also protecting the gastric mucosa from aspirin-induced ulceration in pyloric-ligated rats, and significant protection was observed in histamine-induced duodenal ulcers in Guinea pigs (Quazi S., *et al.*, 2013).

2. *Andrographis paniculata* (Family:- Acanthaceae):-

Pharmacological and Phytochemical constituents:

Andrographis paniculata contains diterpenes, lactones, and flavonoids. Flavonoids mainly exist in the root, but have also been isolated from the leaves. Aerial parts contain alkanes, ketones, and aldehydes. Although it was initially thought that the bitter substance in the leaves was the lactone andrographolide, later investigations showed that the leaves contained two unpleasant principles – andrographolide and a compound named kalmeghin (Shahid Akbar 2011).

Anti-malarial activity:

Malaria is still prevalent disease in many tropical and subtropical countries. *A. paniculata* was found to considerably inhibit the multiplication of *Plasmodium berghei* (Misra P *et al.* 1992). *A. paniculata* extracts effectively killed filarial that obstruct lymph channels consequently leading to elephantiasis, in dog. Recent research also reported Antimalarial effect of *A. paniculata* against *Plasmodium falciparum* (Rehman NN, *et al.*, 1999).

Cardiovascular activity:

Andrographis paniculata increase the nitric oxide, cyclic

guanosine monophosphate, and activity of superoxide dismutase with declines of lipid peroxide and endothelin, exposed in an atherosclerotic rabbit model. These observations recommended the potential of *A. paniculata* as an antioxidant to preserve endothelial function, resulting in upkeep of the balance of nitric oxide/ endothelin. (Biswa Deepak Bharati *et al.* 2011).

Immunological potential:

Some recent research had shown that extract of *A. paniculata* may have the possible for interfering with the viability of the human immunodeficiency virus (HIV) and advised that *A. paniculata* could combine with modern medicines against acquired immunodeficiency syndromes (AIDS). (Bharati *et al.* 2011). Andrographolide, which is the important constituent of *A. paniculata*, can interrupt or adapt the cellular signal transduction pathway of the virus, consequently interfering the key enzymes and viral reproduction. (Stephen H *et al.* 2000). However the *A. paniculata* is located at everywhere so that we can use this plant for numerous diseases and problems.

3. *Abutilon hirtum* (Family:- Malvaceae):-

Abutilon indicum of family Malvaceae is found all the way through tropical and sub tropical region in India, is known as, Atibal in Sanskrit. The several parts of plant has claimed to have numerous traditional medicinal properties. (Roshan S. *et al.* 2008).

Major chemical constituents:

Hescoses, nn-alkane mixtures, alkanols, B stasterol, Vanillic, p-coumaric, acceic, fumaric and amino acids, alantolactone, isolantolactone etc. (S. Rajeshwari *et al.* 2018)

Analgesic activity:

Analgesic potential of various extracts of root of *Abutilon indicum* Linn was evaluated by Rajurkar R *et al.* (2009). They subjected the powdered root (900 g) to successive solvent extraction with solvents in increasing order of polarity viz. petroleum ether (60-80 C°), methanol and ethanol by Soxhlet apparatus for 72 hrs. They extracted marc by cold maceration for 72 hrs to get water soluble extract. Peripheral analgesic activity was studied using acetic acid induced writhing method in Swiss albino mice (20-30 g) while central analgesic activity was assessed by tail flick method and tail immersion method. Results indicated that all the tested extracts except methanol extract exhibited significant analgesic activity in both animals models (S. Rajeshwari *et al.*, 2018).

Diuretic Activity:

It showed important reduction in serum creatinine, alkaline phosphatase and uric acid levels. In addition to this, the nephroprotective effects the extract were confirmed by the histopathological inspection of the kidney tissue that showed a major improvement of the renal cellular damage. (Ushakiran RT. *et al.*, 2013).

The aqueous and ethanol extracts of *A. indicum* leaves showed a important increase in urine volume and urinary electrolytes (Na⁺, K⁺ and Cl⁻) excretion when controlled verbally at doses of 200 and 400 mg/kg in rats (Alshymaa Abdel-Rahman Gomaa *et al.*, 2018).

3. MATERIALS AND METHODOLOGY

Study area:

The study was carried out in Sironcha region of Gadchiroli District (M.H), India, 128 villages located in this area. Sironcha is very backward tehsil among all tehsil in Gadchiroli district. Study area was very far away from the district is about 212 km. The study area was in great part of the village, including a vast vegetative zone with plenty useful trees as food plants, medicinal plants, etc.

Methodology:

Present work carried out in Gummalkonda, Somnur, Muttapur, Mukkidgutta, Lambadpalli villages of Sironcha taluka in order to document the habitats and ethnic uses of ethnomedicinal plants of the area. The surveys were carried out by interacting local vaidus and old citizens to obtain multiple information, to collect information I have used conversation with the elder people and discussed about four medicinal plants these are very antique because of their high effectiveness to diseases like snake bite, bone breakage, stomachache etc. these plants namely *Calatropis procera*, *Cassia fistula*, *Sapindus emarginatus*, *Cordia myxa*, *Moringa oleifera* etc. would be used to treat snake bite, and besides this many plants used to treat various diseases

like *Andrographis paniculata* (Skin diseases), *Abutilon hirtum* (Strongly antiseptic), *Alternanthera sessilis* (asthma and other lung troubles), *Eclipta prostrata*.

Also ethnomedicinal properties of the selected plants were surveyed on the internet by searching different research articles from reputed journals.

4. RESULT AND DISCUSSION

During the survey period a total of 10-15 healers from the four villages have been interviewed and according to their interaction I have matched all their information and I noticed many of them are matched like *Calotropis procera* used for snake bite, *Andrographis paniculata* used for Skin diseases. Among all 10-15 healers 94% are elder citizens their age approx. 55-70 years.

Level of knowledge of the healers:

The traditional medical healers interacted during the study period showed different instruction levels. A few numbers of them (less than 10 faith healers) have never been to school; they expressed only in local language and share their experienced knowledge. This category of practitioner was in the group of 60-70 years and over.

A remarkable presence of domestic medicinal plants species:

The presence of domestic plants species among the investigated species was significant. These domesticated plant species growth in the villages, near the houses or surroundings. A great number of them were harvested from the wild study area. Some of those domesticated plants presenting medical interest have been cultivated exclusively for curative purposes.

The ethnobotanical investigations led on medicinal plants in the study areas revealed the amazing richness of the biodiversity of medicinal plant species with reference to the visited localities. The results obtained showed that medicinal drugs originated from plants are still widely used by the population in the Sironcha region. The data gathered with the informers during the discussions indicate the high level of knowledge of the traditional medical healers in Sironcha regions.

Due to pandemic least villages have visited but according to interaction with old people about medicinal plants in Sironcha region shows extraordinary diversified medicinal plants history from ancient times used by tribal gond peoples in particular sironcha region.

5. CONCLUSION

- According to survey concluded that every village in Sironcha region has at least one healer and they have specialized on one special disease or diverse sickness.
- This study showed that a great variety of medicinal plants are used by the traditional medical healers in Sironcha for treating diverse sickness.
- Finally, the local population particularly the youth should be educated and also encouraged to learn more the traditional medicinal knowledge to preserve it from being lost with the old generation.

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