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Hepatoprotective Efficacy Of Some Ethnomedicinal Plants Used By Tribes Of Umarkhed And Allied Area Of Yavatmal District, Maharashtra

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ABSTRACT:
The hepatoprotective properties of medicinal plants have been the subject of numerous investigations. Because numerous plant chemicals are known to interfere with the human digestive system, there is a widespread traditional use of plants to cure a variety of ailments, including liver-related issues. The present research deals with the documenting of ethnomedicinal uses of plant and their parts, notably the liver protective plants utilized by Banjara tribe of Yavatmal range forest of Yavatmal district. The Yavatmal forest range was chosen for research because the indigenous people living there primarily rely on the forest's flora for their survival and utilize herbal remedies to treat illnesses. Over the course of five years (2005–2010), a total of 26 plants hepatoprotective were recorded and documented which are used by tribals of Umarkhed taluka people.

Keyword: Ethanomedicine, Medicinal plants, Hepatoprotective activity, Tribals, Yavatmal forest

INTRODUCTION:

According to Dienstag and Isselbacher (2001), the liver is an essential organ that plays a critical role in maintaining metabolic processes and detoxifying the body from external and internal threats such as medications, xenobiotics, viruses, and chronic alcoholism. If liver function is compromised, various homeostatic pathways are impacted, potentially leading to severe outcomes. An estimated 20,000 people die from liver disorders each year. Approximately 2,500 new cases of hepatocellular carcinoma are diagnosed worldwide each year, making it one of the top ten most prevalent cancers. While viruses are the primary cause of liver illnesses, other prevalent causes include excessive drug use, environmental contamination, and alcohol intoxication. When treating liver problems, conventional medications can occasionally be ineffective and have dangerous side effects.

Due to their vast range of biological and therapeutic activities, wider safety margins, and lower costs, herbal medicines are much sought after for primary healthcare in both developed and developing nations (Chattopadhyay & Bhattacharyya, 2007). In contrast, the most significant phytoconstituents for treating liver diseases are found in medicines like silymarine (Silybum marianum), catechin (Anacardium occidentalis), glycyrrhizin (Glycyrrhiza glarbra) in Japan, and chizandrins (Schizandra chinesis) in China (Hikino and Kiso, *et al* 1988). These drugs are primarily used on a regional basis. Even though there has been significant progress in creating highly effective, widely accepted, and reversible treatments for hepatitis in the general population, the creation of novel hepatoprotective medications derived from medicinal plants remains an appealing idea. Information about screening plants with hepatoprotective properties has been gradually accumulating (Farnsworth *et al.*, 1975). In these situations, ayurvedic or ethnomedical medications may be helpful. The information obtained from folklore and historical texts regarding plants and herbs can be used to treat liver issues.

Three forest divisions in the Yavatmal district—Yavatmal, Pusad, and Pandharkawda—are abundant in medicinal plants. The district's main population are *Andh, Kolam, Gond Banjara,* and *Mali.* In various states, they go by different names. The local tribe has traditionally used a variety of plants and their parts as medicine to shield the liver from harm. These tribe members have long understood the condition and had their own methods for treating liver disorders.

Regretfully, there is no known or verified ethanobotanical enumeration of medicinal plants' hepatoprotective activity for the Yavatmal region. As a result, this study serves as a modest attempt to learn more about the conventional medical treatment of this area.

MATERIAL AND METHODS:

During the present work the ethnomedicinal field work was carried out in tribal hamlets, forest and different villages in Yavatmal district. Yavatmal district is located in eastern (Vidarbha) region of the Maharashtra. It is located between 19º 26´ to 20º 42´ North latitudes and 77º 18´ to 79º 98´ East longitudes. The total forest area in Yavatmal district is 2508.010 sq/km which is 18.46 % of the geographical area of the district. Ethanomedicinal information was collected

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from *Andh, Kolam, Gond Banjara,* and *Mali.* tribals villagers and many ayurvedic or ethnomedicinal drugs practitioners were interacted for the study and documentation of their traditional knowledge about plants used for treatment of liver problem was recorded (Fig 1 to 9). Extensive field survey of different parts of the district was made along with the local tribal villagers and ethnomedicinal / ayurvedic drug practitioners, perusal of published literature and herbarium specimen of different herbaria of the district was done to document information following the methodology of Kshirsagar, *et al* (2011) and Saleem, *et al* (2010), Khanthale and Birader (2010). Specimens were identified with the help of standard floras by taxonomy experts in Department of Botany, G. S. Gawande Mahavidyalya, Umarkhed and deposited in the herbarium of the same college.

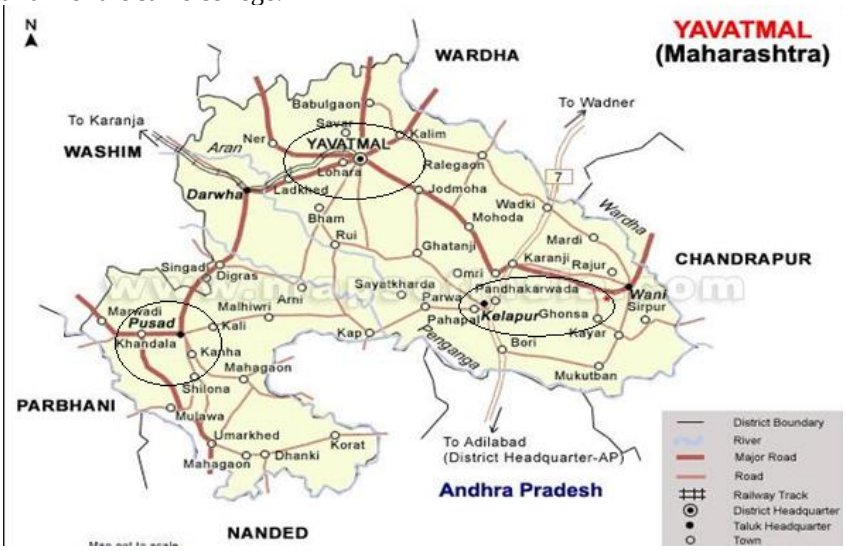

Fig: Map showing the different regions of Yavatmal district and encircled area showing the forest region included under study.

RESULTS AND DISCUSSION:

The Yavatmal, Pusad and Pandharkawda range forest of Yavatmal district has been widely acknowledged for its herbal treasure trove. The medicinal plants are used as cheap and safe remedies for various ailments by tribals and aborigines. The present study revealed that the *Andh, Kolam, Gond Banjara,* and *Mali* tribal aborigines of Yavatmal forest range have adequate ethanobotanical knowledge which has been transmitted from one generation to another. This information of medicinal plants with botanical name, local name, family and parts used is given in Table- 1.

In the present work 26 plants were recorded as hepatoprotective used by the *Andh, Kolam, Gond Banjara,* and *Mali* tribal of range forest of Yavatmal district. This study may focus researcher's attention for phytochemical and pharmacological investigation of the above documented hepatoprotective plants to know their efficacy on modern scientific lines for the validity of ethnobotanical claims and thus would be of great scientific contribution to the society.

A lot of medicinal plants, traditionally used for thousands of years, are present in group of herbal preparation of the Indian traditional health care system. In India, over 40 polyherbal commercial formulations reputed to have hepatoprotective action are being used. Scrutiny of the literature indicates that 160 phytoconstituents from 101 plant families have antihepatotoxic activity (Handa and Sharma, 1986) and (Sharma, *et al* 1991). Silymarin; a phytoconstituent from (*Silybum marianum*) has been widely used from ancient times because of its excellent hepatoprotective action. *Pichrorriza kurroa* Royle contains kutokoside and picroliv which are potential hepatoprotectant (Dwivedi, *et al* 1990) and (Visen, *et al* 2004). *Phyllanthus amarus* is another most important plant selected for clinical trials.

The present paper describes literature survey on liver protective herbal drugs; herbal drugs used as a hepatoprotective in Ayurvedic system of medicine. From hundreds of year, the Ayurvedic formulations are being employed in Indian subcontinent to cure liver disorders, natural chemical constituents and inorganic salts are prescribed to treat the liver complications of minor to severe type of liver toxicity. Liver protective herbal drugs contains a variety of chemical constituents like phenols, coumarins, lignans, essential oil, monoterpenes, carotinoids, glycosides, flavonoids, lipids, alkaloids and xanthines. Sesquiterpenes have been reported from *Atracyclodes maerocephala. Andrographis panicles* and *Gardenial florida* are the only source of diterpenes and carotinoids respectively. Extract of about 25 different plants have been reported to cure liver disorders. Some herbal drugs such as like *Adenosma indiana*, aromatic amides of *Clausena lansium, Ginseng saponins* and polysaccharides of *Auricularia auricular* and *Tremella fuciform* also possess hepatoprotective property. In Ayurveda about 77 herbal drugs are used as hepatoprotective agents. There are different plants and their parts used for liver treatment, such as *Sanguinaria candesis* (roots), grown in U.S.A. and Canada is advised in hepatic enlargement and in the hysteric without any organic lesion. *Tarazacum officinale* roots, found in Europe, Himalaya, Nigeria, North West Provinces and North America, are advised in chronic liver infection (Khory and Katrak, 1981).

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Table 1: Systematic enumeration of liver protective ethnomedicinal plants by tribal's of Yavatmal district

Sr. No	Botnical Name	Common name/ Local name	Family	Plant Parts used
1	***Azadirachta indica*** A. Juss.	Neem tree	Meliaceae	Leaves
2	***Aloe barbadensis*** Mill.	Korphad	Liliaceae	Leaves
3	***Arena lanata*** (L.) Bth.	Kapurimadhuri	Amaranthaceae	Whole plant
4	***Aegal marmelos*** (L.) Correa.	Bel	Rutaceae	Fresh leaves
5	***Alianthus excelsa*** Roxb.	Maharuk, Mahanimb	Simaroubaceae	Stem bark
6	***Annona squamosa*** L.	Sitaphal	Annonaceae	Fruits
7	***Aloe vera*** (L.) Burm.f.	Korphad	Liliaceae	Fresh leaves juice
8	***Cassia tora*** L.	Tarota	Caesalpinioideae	Leaves
9	***Citrullus colocynthis*** L.	indrayan	Cucurbitaceae	Whole plant
10	***Cassia fistula*** L.	Amaltas	Fabaceae	Leaves
11	***Capparis deciduas*** (Forsk.) Edgew.	Nepti, Ker	Capparidaceae	Stem
12	***Curculigo orchioides*** Gaertn.	Kalimusali	Amarylliaceae	Rhizomes
13	***Calotropis gigantean*** (L.) R. Br	Ruae	Asclepiadaceae	latex, flower, stem
14	***Emblica officinalis*** Gaertn.	Aola, Amla	Euphorbiaceae	Fruit
15	***Ficus benghalensis*** L.	Wad, Bargad	Moraceae	Aerial roots
16	***Ficus carica*** **L.**	Anjir	Moraceae	Leaves, Fruit
17	***Gloriosa superba*** L.	Malabar-glory lily	Liliaceae	Fresh roots
18	***Helicteris isora*** L.	Muradsheng	Sterculiaceae	Root juice
19	***Mimosa pudica*** L.	Lajalu	Mimosaceae	Leaves
20	***Moringa oleifera*** L.	Shevga, Mungana	Moringaceae	Roots
21	***Maytenus emarginata*** (Willd.) D. Hou.	Bharati	Celastraceae	Fresh leaves
22	***Myristica fragrans*** Houtt.	Nutmeg	Myristicaeae	Seeds
23	***Plumbago zeylanica*** L.	Chitrak	Plumbaginaceae	Aerial parts
24	***Ricinus communis*** L.	Erandi	Euphorbiaceae	Leaves
25	***Tephrosia purpurea*** (L.)Pers.	Unhali	Papilionaceae	Roots
26	***Terminalia bellirica*** (Gaerth) Roxb.	Behada, Bahera	Combretaceae	Fruits