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## Traditional use of herbal medicinal plant *Holarrhena antidysenterica* (L.) wall in the treatment of diabetes

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**Abstract**

The present study was conducted in the region of Ghunghuti forest of Umaria District. The study was carried out during the period of June 2020 to August 2021. A large number of villages were visited in this region. The information was documented involving field study by contacting and interviewing traditional healers for plants used in the treatment of diabetes. *Holarrhena antidysenterica* (L.) Wall. (Apocynaceae) was selected for the study. The patients who had used medicines prepared by healers were also interviewed to document information of age group 9 to 76 years. To establish identity, the plant is collected for making herbarium record and deposited in the Department of Botany, Govt. Girls P.G. College, Rewa (M.P.).

**Keywords:** *Holarrhena antidysenterica*, traditional healers, diabetes, Ghunghuti forest, Umaria district

**Introduction**

India is one of the 12 largest biodiversity hotspots in the world with more than 45,000 different species of plants, of which about 15,000-20,000 have good treatment facilities where only about 7,000-7,500 are used by traditional healers. Every traditional medicine has its roots in traditional medicine and home remedies. The WHO has listed 20,000 medicinal plants used in various parts of the world. Some estimates indicate that the number will be between 35,000 and 70,000 worldwide (Lewington, 1993; Bhattarai and Karki, 2004) [1, 2]. The WHO estimates that 80% of the world's population relies solely on traditional medicine (WHO, 1978; Okerele, 1992) [3, 4]. In India, it is reported that healers use 2500 plant species and 100 plant species serve as common sources of medicine (Pei, 2001) [5]. Over the past few decades there has been a growing interest in the study of medicinal plants and their use in traditional parts of the world. Indigenous medicinal knowledge of medicinal plants and their use by traditional cultures not only contributes to the conservation of cultures and biodiversity but also to the development of public health and drug development in the present and future Pei (2001) [5].

During this study our attention is focused on *Holarrhena antidysenterica* under the family Apocynaceae one such plant, commonly known as "Indrajav" is a shrub that is distributed throughout India up to 4,000 meters high. is considered a popular remedy for diarrhea, intestinal worms (Kavitha *et al.* 2004; Sing K.P., 1986) [6, 7] and the seeds of this plant are used as an anti-diabetic remedy in Asian countries. Scientific research on this plant for the treatment of diabetes is limited (Pankaj *et al.* 2005) [14].

However, no such activity has been reported with the antidiabetic effects of *Holarrhena antidysenterica* bark. To keep this in mind, current research has been conducted to document the effects of *Holarrhena antidysenterica* bark allergies in this region.

Ghunghuti forest is present in district Umaria. This forest is very dense forest. District Umaria is located to the North East of Madhya Pradesh. Mathematically the coordinates of the District extend from 23°38' to 24°20' North and 80°28' to 82°12' East. It has geographical area of 4548 sq.km. The greatest length of the district is about 150 km. from north to south and the greatest width is about 60km from east to west. The district has extensive forests. About 42% of the total area is covered by forests only. The District is rich in minerals. The most important mineral found in the district is coal and as a result 8 mines are being operated by South Eastern Coalfield Limited in the district. The famous Bandhavgarh National Park (Tala) and Sanjay Gandhi Thermal Power Station Mangthar (Pali) are located in the district.

Umariya was formerly the headquarters of the South Rewa District and thereafter the headquarters town of the Bandhavgarh tehsil. It is situated at a distance of about 69 Km. from Shahdol, the parent district. Metalled roads connect the town with Katni, Rewa, Shahdol.

The objective of this study was to interact with local traditional healers and document their knowledge on medicinal plants, their usage and the types of diseases treated etc. As far as the Umariya district is concerned, meagre reports are available on the floristic composition and indigenous ethnomedicinal information present with the tribal of this area. From the foregoing account, it is clearly evident that, the investigations on ethnomedicinal aspects of the tribal regions of Ghunghuti forest have not been explored in spite of its richness in plant diversity and varied cultural practices.

### Material and Methods

The study was carried out in the tribal region of Ghunghuti forest, Umariya district during the period, May 2020 to August 2021. A large number of places were visited in tribal localities of Ghunghuti forest. The tribal villages were surveyed through periodical tours in tribal localities. Special attention was paid to record information from local Vaidyas, Hakims and traditional herbal healers. These informants were traditional healers themselves or had tradition of healing in their families and had knowledge of the medicinal use of the plants. The information was documented involving field study by contacting and interviewing Vaidyas, Hakims and traditional herbal healers for plants used in the treatment of diabetes.

The tribals who had used these medicines prepared by local ethnic medicine-men were also interviewed to document ethnobotanical information of age group from 9 to 76 years and were resident of tribal pocket in the district. To establish identity, plants were collected with the help of herbal healers and practitioners for making herbarium record. The botanical names, vernacular names, family and method of treatment and mode of preparation of drug has been documented. The dictionary of Indian Folk Medicines by Jain (1991) [9], Indian Materia Medica by Nadkarni (1982) [10] was also consulted to compare with earlier reports by different ethno-botanists. The present documentations were not earlier reported.

Voucher specimens of medicinal plants were collected, prepared and identified. All the preserved specimens were deposited at the Department of Botany, Govt. Girls P.G. College, Rewa (M.P.).

### Observation and Results

The tribals invaded and localized in the Ghunghuti forest, Umariya district are Gond, Kol and Baiga. These tribes as per socioreligious rituals worship nature. The ethno-medico-botanical study was conducted to record plants used in pockets of tribal areas. As per information collected from herbal healers and Vaidyas these plants are locally available in abundance and are being used since ancient times. The wealth of medicinal plant knowledge among the people of this district is based on hundreds of years of beliefs and observations. This knowledge has been transmitted orally from generation to generation; however it seems that it is vanishing from the modern society since younger people are not interested to carry on this tradition. Tribals collect different parts of plant for medicinal purposes.

The tribals and peoples of adjoining areas were observed suffering from diabetes. The medicinal plant *Holarrhena antidysenterica* (Fig. 1) is the most commonly used herb in the treatment of diabetes in this region is described.

The dosage for control of this disease is described as below: The patients suffering from diabetes cured by oral administration of 50 ml decoction of bark of *Holarrhena antidysenterica* twice a day before meals until cure. Decoction is prepared by taking 1 liter water and 100 gm bark powder.



Fig 1: A twig of *Holarrhena Antidysenterica*

Traditional Use of Herbal Medicinal Plant *Holarrhena antidysenterica* (L.) Wall. Ex A. Dc. in the Treatment of Diabetes.

### Discussion

Numerous studies on ethnomedicinal plants and herbal medicines have been conducted in the past and the plants have been reported for medicinal purposes by several nations. Ethnobotanical research can provide many different indications for the development of drugs for the treatment of human diseases. Safe, effective, and inexpensive indigenous remedies are gaining popularity equally among the people of both the urban and rural areas, especially in India and China (Katewa *et al.* 2004) [11].

The bark and seeds of *Holarrhena Antidysenterica* are used to treat amoebic dysentery, diarrhea, asthma, bronchopneumonia, malaria (Kumar and Ali, 2000) [12]. Decoction of seeds was recommended by "Bhavaprakasha" in diabetes (Ghose, 1998) [13].

When people suffer from diabetes, they apply herbs prepared by traditional healers. These plants are found in their natural environment where modern hospitals do not exist. The international community relies on their medical help to the local healer and the traditional one located near the place of residence. The number of the patients interviewed in 15 villages for using these herbal medicines in the treatment of diabetes is presented in figure 1.

In the past the regional tribes harvested medicinal plants only for a limited time and day and believed that at this time they had more medicinal value. It is clear from modern science that vegetables sometimes contain active ingredients. These types of traditional harvesting processes will help provide raw materials with a sustainable foundation and saving tools.

## Conclusion

The information as a result of the research will serve as a useful tool for botanists, chemists, phytochemists, physicians, forestry, planners and managers in the preparation of applications and development of conservation and herbal drug industry in the tribal. Leaflets for self-employment and for improving and enhancing the health, economy and social status of people of all nationalities and backgrounds.

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