

Ethnobotanical study of *Phyllanthus amarus* used in treating diabetes mellitus in Patna district of Bihar, India

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Abstract: *Phyllanthus amarus* is an important medicinal plant which has many medicinal properties and is found as a weed in cultivated land, road side, railway track side in the tropical and sub tropical region. Patna district is located in the subtropical region and the climate of the Patna district is suitable for the growth of *Phyllanthus amarus*. Local people of Patna district use this plant for the treatment of some diseases. Local people use leaves juice for the treatment of diabetes mellitus. The whole plant parts of *Phyllanthus amarus* have antidiabetic properties.

Key Words: *Phyllanthus amarus*, Euphorbiaceae, Ethnobotanical, medicinal plant, diabetes mellitus.

1. Introduction

Phyllanthus amarus plant is a small herb and well known for its medicinal properties in the Indian Ayurvedic system. In India, around 20,000 medicinal plants have been recorded which are used for the treatment of many diseases¹. The plant belongs to the genus *Phyllanthus* and is used as a raw herbal drug in India². *Phyllanthus amarus* is used as an important traditional medicinal plant³. *Phyllanthus amarus* plant is used for several health problems and the plant has many medicinal properties⁴. Ethnobotanical survey about the plant and inquiries from practising Unani doctors and Ayurveda experts reveal that different parts of the plant and especially whole plants are used in different diseases. Though many workers have attempted clinical trials which only led to controversies. One definite report of the biological activity of stem and root extracts against diabetes. It is a doubtless established fact that people have been using different plant parts in various types of diseases.

The disease diabetes mellitus was known to the Indian Physician long ago. Indian physicians called it *madhumeha* (honey urine) because it attracted ants. In the ancient period of India history physician Charak (200 A.D.) mentioned most of the clinical features of this disease in "Charak Samhita"⁵. Susruta (500 A.D.) gave the description of this disease as "madhu meha" or "Ikhumeha" or "honey urine" as the urine of these patients tastes sweet⁶. Diabetes is the consequence of the malfunctioning of the metabolism. If the levels of glucose become very high then it will become toxic. Insulin is a hormone produced by the Pancreas. When insulin is

deficient the body is diseased. There are many causes of diabetes mellitus i.e. bad diet, fatty food and sugary food, old age, stress, obesity, anxiety, lack of insulin, family history etc⁷. *Phyllanthus amarus* plant belongs to Euphorbiaceae (Phyllanthaceae). *Phyllanthus amarus* plant is worldwide distributed in tropical and sub tropical area. In the country India this plant is widely distributed as a weed in cultivated and waste land⁸. In Patna district of Bihar *Phyllanthus amarus* is widely distributed in the waste land as a weed in cultivated land, road side, railway track side etc.

2. Materials and Methods

In this study, the study area taken the Patna district. Patna district is located in the Bihar and south bank of the river Ganga. Approx 57% population lives in rural area of this district⁹. Area of Patna district belongs to the subtropical region of temperate zone. Subtropical climate is suitable for the *Phyllanthus amarus* plant growth. For ethnobotanical study of *Phyllanthus amarus* plant used in treating diabetes mellitus direct interview with the people of the rural area of the Patna district and a structural questionnaire were asked. Most of questionnaires were asked to old age people, females and local knowledgeable people which have knowledge about herbal medicine. Asked questions about the local name of plants used for the treatment of diabetes mellitus.

Plant Identification: After interview, preliminary identification of the plants was done in the field during the research. After that, plant specimen collected and photographs were taken to confirm the plant

identification with the help of important reference, Indian Medicinal Plants by Kiritkar and Basu¹⁰, the identification was conformed.



Fig: *Phyllanthus amarus* found in Patna and its habitat.

3. Result and Discussion

For the present study, a preliminary survey was carried out the rural people of Patna district called the diseases diabetes mellitus named “Cheenee” diseases. They well known about this diseases and identifying primary symptoms of diabetes mellitus to attract ant on the urine of the diabetic patients. Rural people of Patna district were used some plants for treatment of diabetes mellitus. But *Phyllanthus amarus* plant also used for an important medicinal plant for treatment of the diabetes mellitus. Local people known as this plant is Bhumi amla, Jangli amla. Juice of leaves *Phyllanthus amarus* were used for the treatment of diabetes mellitus by the local peoples of Patna district. *Phyllanthus amarus* have many pharmacological properties and many active phytochemicals, which is flavonoids, alkaloids, terpenoids, lignans, polyphenols, tannins, coumarins and saponins¹¹. The whole *Phyllanthus amarus* plant have antidiabetic effect¹². *Phyllanthus amarus* plant have the potential medicinal value which used in the traditional medicines, and highlights the significance of physicochemical properties. *Phyllanthus amarus* extracts has decreased the levels of the biochemical markers of the hepatic damage blood glucose level and decreases them to the normal levels.

4. Conclusion

Phyllanthus amarus plant is grows in tropical region of the world. It is found in wastelands and roadside area. In India it is widely distributed in Bihar, Uttarparadesh, Jharkhand, Odisha and other tropical region states. The whole plant parts is used as popular folkmedicine, particularly hepatitis, anti viral anti diabetic etc. The local peoples of the Patna district uses for the treatment of diabetes mellitus. Ethnobotanical study of *Phyllanthus amarus* may be helpful for pharmaceutical industry for drugs development.

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