International Journal of Advanced Technology in Engineering and Science
Vol. No.4, Issue No. 01, January 2016
www.ijates.com
ijates
ISSN 2348 - 7550

TRADITIONAL MEDICINAL PLANTS USED FOR TREATMENT OF DIABETES IN MURSHIDABAD DISTRICT, WEST BENGAL, INDIA

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ABSTRACT

Diabetes mellitus is a metabolic disorder which is greatly prevalent in India and the use of traditional medicinal plants for its treatment is also very popular. In this study, an observation was conducted for identify the traditional medicinal plants used for the treatment of Diabetes mellitus in rural Murshidabad district, West Bengal, India. In this survey, the ethno-botanical data were obtained from old aged villagers, tribal people, Vaidyas, Ojhas, Kabiraj and local herbal drug sellers. A total of 11 medicinal plants belonging to 10 families were accounted for the treatment of Diabetes mellitus in Murshidabad district. The plant families used by the local people for treatment of Diabetes are Meliaceae, Cucurbitaceae, Anacardiaceae, Rutaceae, Apocynaceae, Acanthaceae, Mimosaceae, Malvaceae, Menispermaceae, Moringaceae. Mentioned plants are, Momordica charantia (Korola), Swietenia mahagoni (Mahagani), Mangifera indica (Aam), Azadirachta indica (Neem), Aegle marmelos (Bel), Catharanthus roseus (Nayantara), Andrographis paniculata (Kalmegh), Acacia nilotica (Babla), Abroma augusta (Ulatkambal), Tinospora cordifolia (Gulancha), Moringa oleifera (Sajina).

Keywords: Diabetes Mellitus, Ethno-Botanical, Kabiraj, Ojhas, Traditional Medicine, Vaidyas.

I. INTRODUCTION

Diabetes mellitus has become a common disease of the world. It is a disease in which the body is unable to produce or unable to properly use and store glucose. Glucose backs up in the bloodstream-causing one's blood glucose or "sugar" to rise too high. It is a metabolic syndrome of multiple etiologies characterized by chronic hyperglycemia with abnormalities in carbohydrate, fat and protein metabolism due to defect in insulin secretions. Nathan *et al.* (2005), remark that serious long term complications include cardiovascular disease (double risk), chronic renal failure and retinal damage (which can lead to blindness). Others are nerve damage and micro vascular damage, which may cause erectile dysfunction (impotence) and poor healing. Rahmatullah *et al.,* (2012) reported that round 200 million people of the world are currently suffering from diabetes. According to recent estimates, approximately by the year 2030, 438 million people (7.8%) of the adult population, is expected to have diabetes (Ramachandran *et al.* 2010). According to the International Diabetes Federation (IDF), the number of individuals death in diabetes with an estimated 4.6 million each year (Dong *et al*., 2012). India is the world's second most populous country, having more people with type - II diabetes than in any other nation as the disease prevails in both genders and all age groups (Jared, 2011; Safdar *et al.* 2004). The

rapid growth of this disease is due to heredity, endocrine imbalance, dietary imprudence, after effects of infection, obesity, severe and continued mental stress, reduction in physical labor large differences in social structure etc., which provide a productive atmosphere for diabetes (Raghuram *et al*., 2003). Traditional ethno-botanical studies are today recognized as the most viable method of identifying new medicinal plants or refocusing on those earlier reported plants for bioactive constituents. It is also observed that more than 35,000 plant species are being used around the world for medicinal purposes (Sukumaran, 2010). The Indian sub-continent approximately 8,000 species are considered medicinal and used for human and veterinary care across the country by village communities, particularly tribal communities, or in traditional medicinal systems, such as the Ayurveda (Pei, 2001). A major part of the total population in developing countries still uses traditional folk medicine obtained from plant resources (Srivastava *et al.*, 1996). The World Health Organization has estimated that over 80% of population in developing countries depends directly on plants for medicine (Pareek, 1996; Mukhopadhyay, 1998, Azaizeh *et al*., 2003). In India, drugs of herbal origin have been used in traditional systems of medicine such as Unani, Ayurveda and Siddha (Satyavathi *et al*., 1987). In our country indigenous medicines have been used in the treatment of Diabetes Melitus since the time of Charaka and Sushruta (6th century BC) (Grover *et al*., 2001). A number of reviews have been published on medicinal plants screened for anti-diabetic activity in India (Mukherjee *et al*., 1966; Mehta, 1982; Aiman, 1970; Chaudhury *et al*., 1970; Karnick, 1972; Mukherjee, 1981; Nagarajan *et al*., 1989; Sever, 1980; Handa *et al*., 1989; Atta ur-Rahman *et al*., 1989; Singh *et al*., 1975). The rich biodiversity of Murshidabad district of West Bengal has provided an initial advantage to its inhabitants for observing and scrutinizing the rich flora for developing their own traditional knowledge in curing various ailments. A large number of plant species of immense medicinal value are abundantly found in the district. The present work is undertaken for the documentation and analysis of various traditional medicinal plants used for treatment of diabetes in the rural areas in Murshidabad district.

II. MATERIALS AND METHODS

2.1. Study Area

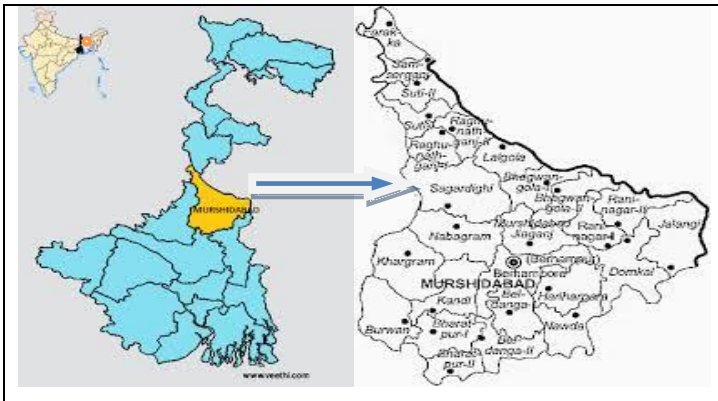

Figure 1. Study Area

Murshidabad District (figure 1.) of West Bengal is a large agriculture based district having 26 blocks with 1937 villages where most of the rural people still use the medicinal plants as their remedies for different ailment. Murshidabad lies to the north of the state and is situated between 24° 50'N - 23°43' N latitudes and 88°46' E - 87°49' E longitudes and covers a total of 5341 sq. kms. River Padma flows through the eastern boundary of the

state, which separates it from Malda district and Bangladesh. To the south is Nadia and Burdwan district. To the west lied Birbhum and Jharkhand state of India. The district is divided by the river Bhagirathi into two equal parts. Both parts have different geographical features like the agriculture, geology, habitation and religion. The two areas are the Rarha area and the Bagri area. There are many communities such Hindus, Muslims, Tribals and other minorities. This district has also a very old tradition of practicing Kabiraji, Ayurveda and Unani.

2.2 Data Collection

An ethno-medicinal study was undertaken in different villages of various blocks in Murshidabad district. The work was undertaken through field study carried out throughout the season conducted during February 2014 to October 2015. The ethno-botanical data were obtained from tribal people, Vaidyas, Ojhas, Kabiraj, local herbal drug sellers and the information collected from the available literature. The data including local name, part used were collected interview, questionnaire, collecting sample and discussion were carried out in the field visit. The information was also cross verified with some local aged and experienced practitioners. Plant specimens were collected and identified following standard taxonomic methods (Guha, 1984; Prain, 1963).

III. RESULTS

In the present investigation 11 species of medicinal plants belongs to 10 families, total 11 genera were used for the treatment of Diabetes mellitus. The major plant families used by the local people for treatment of Diabetes are Meliaceae (two species), Cucurbitaceae, Anacardiaceae, Rutaceae, Apocynaceae, Acanthaceae, Mimosaceae, Malvaceae, Menispermaceae, Moringaceae. Medicinal plants used by common people are given in **table 1** with Latin name, family, local name, parts used and formulation.

Table-1: Enumeration of the ethno-medicinal plants used for treatment of Diabetes mellitus.

Plant Species	**Families**	**Local Name**	**Part(s) used**	**Formulation**
Momordica charantia L.	Cucurbitaceae	Karola	Leaf and fruit	Leaf and fruit juice in early morning is used to treat diabetes.
Swietenia mahagoni (L.) Jacq.	Meliaceae	Mahagoni	Seed	Seed pulp decoction used for control blood sugar level.
Mangifera indica L.	Anacardiaceae	Aam	Leaf	Dry young leaves decoction in empty stomach for controlling blood sugar level.
Azadirachta indica A. Juss.	Meliaceae	Neem	Leaf	Chewing and swallowed young leaves in empty stomach control blood sugar level.
Aegle marmelos L.Correa	Rutaceae	Bel	leaf	Leaves chewed and swallowed every morning help to reduced sugar of diabetes patient.

Catharanthus roseus (L.) G. Don.	Apocynaceae	Nayantara	Leaf	Leaf extraction useful in diabetes.
Andrographis paniculata (Burm. F.) Wall. Ex Nees	Acanthaceae	Kalmegh	Leaf	Leaf paste soup used for treatment of diabetes.
Acacia nilotica L.	Mimosaceae	Babla	Leaf	Young leaves chewing and swallowed for lowering blood glucose level in diabetic patient.
Abroma augusta (L.) Lf.	Malvaceae	Ulatkambal	Leaf	Young petiole decoction for overnight is used at early morning in empty stomach to cure diabetes.
Tinospora cordifolia (Willd.) Hook. F.	Menispermaceae	Gulancha	Stem	Stem boiled with water is given daily in empty stomach to control blood sugar.
Moringa oleifera Lam.	Moringaceae	Sajina	Leaf	Boiled in water and taken as a hot drink for diabetes.

IV DISCUSSION

The use of traditional medicinal plants is wide spread in Murshidabad district. The information documented in this work is totally from primary sources being based on the uses of the locally available plants for treatment of Diabetes by the people as their household remedies. Different parts of medicinal plants were used as medicine by the local traditional health healers. To cure diabetes local traditional healers were using leaves (09) most commonly followed by one fruit and one seed. Most of the plants used in medicines are either mixed with other ingredients or single. Medicinal formulation is simple, most of them uses as juice of leaf or decoction. The observation of present study showed that traditional medicine plays an important role for treatment of Diabetes among the local people of Murshidabad district.

V. CONCLUSION

The rural Murshidabad district is an important source of traditional medicinal plants. There was lack of organize data about these medicinal plants. Traditional medicinal knowledge about these plants is confined in many small ethnic groups, which are not explored for human welfare. My observation plays an important role in providing knowledge to the researchers in the field of Diabetes, ethno-botany and ethno-pharmacology, so this article will attract the attention of ethno-botanists, phytochemists and pharmacologists for further critical investigation of medicinal plants used for treatment of Diabetes mellitus.

VI ACKNOWLEDGEMENTS

The author is highly thankful to the rural people who providing the information during the field study.

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