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Research Article

INDIGENOUS KNOWLEDGE OF ANTIDIABETIC MEDICINAL PLANTS IN MADHYA PRADESH

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ABSTRACT

Hyperglycemic patients increase year by year throughout the world and 2nd leading cause of death after heart disease and cancer in many developed countries. Diabetes mellitus is a clinical condition characterized by increased blood glucose level (hyperglycemia) due to insufficient or inefficient insulin. An important feature of diabetes is that the body cells are starved of glucose despite its very high concentration around i.e., scarcity in plenty. Diabetes is a major cause of blindness, renal failure, amputation, heart attacks and stroke. Many plants have been used for the treatment of diabetes mellitus in Indian system of medicine and in other ancient systems of the world. Out of these only a few have been evaluated as per modern system of medicine. Plants have been used both in the prevention and cure of various diseases of humans and their pets. Since the plant products have less side effects, they have the potential as good hypoglycemic drugs. They may also provide clues for the development of new and better oral drugs for diabetes. With the advent of human civilization, many systems of therapy have been developed primarily based on plants.

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INTRODUCTION

Diabetes is a serious metabolic disorder and plenty of medical plants are used in traditional medicines to treat diabetes. Medicinal plants used to treat hypoglycemic or hyperglycemic conditions are of considerable interest for ethno-botanical community as they are recognized to contain valuable medicinal properties in different parts of the plant and numbers of plants have shown varying degree of hypoglycemic and anti-hyperglycemic activity. People use wild plants in many types of different way to meet their basic needs such as food, shelter and clothing which is the basic need of human. Plants are used as a medicine for treatment of internal and external diseases. In developed countries such as United States, Canada, Germany, Australia and New Zealand 20-25% medicinal plant drugs constitute of the total drugs, while in the fast developing countries such as China, India, Brazil, Indonesia and Russia 80-85% much contribution is in countries. There are 2,50,000 higher plant species are known in the earth, more than 85,000 plant species are medicinal. Collection of information and documentation of traditional knowledge plays an important role in scientific research on drug development. WHO depicts that

over 80% of world's population depends on biological resources for their primary healthcare demands. Diabetes is a metabolic syndrome of etiologies characterized by chronic hyperglycemia with abnormalities in carbohydrate, fat and protein metabolism due to defect in insulin secretions. Diabetes is associated with long term damage such as malfunction of eyes, kidneys, nerves, heart and blood vessels. Different types of diabetes mellitus have been identified and categorized as:

Type I Diabetes: It is also referred as IDDM (Insulin dependent diabetes mellitus or Juvenile diabetes). Type I DM results from the body's failure to produce insulin and requires the person to inject insulin.

Type II Diabetes: It is also referred as NIDDM (Noninsulin-dependent diabetes mellitus or "adult-onset" diabetes). Type II DM results from insulin resistance, a Condition in which cells fails to use insulin properly which sometimes combined with absolute insulin deficiency.

Gestational Diabetes: Is when pregnant women, who have never had diabetes before, have a high blood glucose level

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during pregnancy. It may precede development of type NIDDM i.e. non-insulin dependent diabetes mellitus. Other forms of diabetes mellitus include congenital diabetes, which is due to genetic defect of insulin secretion, cystic fibrosis related diabetes, steroid diabetes induced by high dose of glucocorticoids and several forms of monogenic diabetes.

MATERIAL AND METHODS

Jabalpur is a standout and premier city amongst the most vital urban communities of Madhya Pradesh and situated in the heart of country. The city is traditionally called as 'Mahakaushal' The Jabalpur city (between coordinates of 23°10' N and 79°57' E) lies almost in the central portion of Madhya Pradesh as the focal district of India with the geographic territory of 5211 square Km. It is situated on the Deccan Level at an elevation of 402 m above sea level and encompassed on all sides by old basalt shakes and backwoods. The Gwarighat area of river Narmada basin is surrounded with a very large variety of trees, mini forest, vast grassland and small hill; these are the elements for architecting a preferred habitat.

Many types of medicinal plants (Tree, Herb, & Shrub) are found in Jabalpur. Jabalpur is not very forward area and here people used medicinal plants for various treatments. Before survey of medicinal plants our main goal is the study of that area then surveyed the medicinal plants having antidiabetic activity. The six month survey started from July 2018 to December 2019. Then collected plants were identified taxonomically using the Indian medicinal plant literature to ascertain the nomenclature. Medicinal plants used for the treatment of different types of diseases by local peoples of Jabalpur region, Madhya Pradesh.

After survey and local people give information of some antidiabetic plants On the basis of survey, people information and also field guides help these are some antidiabetic plants.

Aegle marmelos

Local Name: Bel

Family Name: Rutaceae

Parts used: Fruit

Medicinal Properties: Aphthamia, Alterative, Antiscorbutic, Cholera, Colic, Cooling, Diabetes, Diarrhea, Digestive, Dysentery, Fever, Heart tonic, Jaundice, Nutritive, Respiratory disorders.

Azadirachta indica

Local Name: Neem

Family Name: Meliaceae

Parts used: Leaves, bark

Medicinal Properties: Anthelmintic, Antifungal, Antibacterial, Antiviral, Antiseptic, Asthma, Chicken pox, Contraceptive, Cosmetics uses, Cough, Diabetes, Eye Disorders, Fever, Healthy hair, Leprosy, Malaria, Pain, Skin diseases, Toothbrush, Tongue cleaner, Urinary disorders, Ulcer, Wounds. (1,2)

Butea monosperma

Local Name: Palas

Family Name: Papilionaceae

Parts used: Whole plant

Medicinal Property: Bleeding piles, Diabetes, Diarrhea, Dysentery, Eczema, Hemorrhages, Infusion, Leucorrhea, Pimples, Ringworms, Skin ulcers, Sores, Swellings, Vaginal disease. (3)

Catharanthus roseus

Local Name: Sadabahar

Family Name: Apocynaceae

Parts used: Leaves, Flower, Root

Medicinal Properties : Anti-Cancer, Asthma, Diabetes, Dysentery, Dyspepsia, High blood Pressure, Leukemia, Low blood pressure, Lymphoma, Menorrhagia, Malaria, Purgative, Tootache. (4)

Carica papaya

Local Name: Papita

Family Name: Caricaceae

Parts used: Fruit, seed

Medicinal Properties: Abdominal disorders, Amenorrhoea, Atherosclerosis, Cancer, Dengue Fever, Diabetic, Diarrhoea, Dysentery, Dyspepsia, Heart attacks, Heart Disease, High blood pressure, Hyperacidity, Malaria, Strokes, Wounds. (5)

Cassia fistula

Local Name: Amaltas

Family Name: Caesalpiniaceae

Parts used: Fruit, leaves, root-bark, stem-bark

Medicinal Properties: Antioxidant, Blood sugar, Blood purification, Cold, Cough, Diabetes, Fever, Leprosy, Pyoderma, Ringworm, Skin disease, Ulcer, Wounds. (6,7)

Curcuma longa

Local Name: Haldi

Family Name: Zingiberaceae

Parts used: Whole plant

Medicinal Properties: Abdominal pains, Anemia, Anti-inflammatory, Antimicrobial, Antioxidant, Antispasmodic, Blood purifying, Cancerous, Cold, Cough, Diabetes. (8)

Ficus religiosa

Local Name: Pipal

Family Name: Moraceae

Parts used: Seed, latex, Bark

Medicinal Properties : Asthma, Boils, Bruises, Cardiac weakness, Diabetes, Diarrhea, Epilepsy, Gastric problems, Gonorrhoea, Inflammatory disorders, Infectious, Jaundice, Mumps, Neck problems, Sexual disorders, Swollen Lymphatic gland, Ulcers, Wounds. (6,9)

Hibiscus rosasinesis

Local Name: Gurhal

Family Name: Malvaceae

Parts used: Flowers, Root, Leaves

Medicinal Property : Aphrodisiac, Arthritis, Coughs, Diabetes, Headache, High blood pressure, Headache, Liver disorders, Menstrual disorders, Piles, Stimulate Blood Circulation, Ulcer, Wounds. (10,11)

Melia azedarac

Local Name: Bakain

Family Name: Meliaceae

Parts used: Root, bark

Medicinal Properties: Amla having the property of Amenorrhoe. It is also used for Burning sensation. It is useful for Cough. Amla is used for the treatment of Diabetes, Fever, Headache, Leprosy, Lumbago, Rheumatism, Sciatica, Scrofula, Urinary tract Infection, Ulcer, Vata, Wounds, Vomiting. (12)

Emblica officinalis

Local Name: Amla, gooseberry

Family Name: Euphorbiaceae

Parts used: Fruit

Medicinal property: Antidiabetic ; It helps in regulating blood sugar. It is very powerful anti-inflammatory herb, a wonderful antioxidant and a natural Source of Vitamin C. Amla helps scavenge free radicals. Amla is powerful food for the brain. Amla helps to show lower cholesterol. Amla also helps maintain the functioning of the liver, increases hemoglobin, red blood cell count. It is useful for Cough, Bronchitis, and Asthma. Amla cleanses the mouth, strengthens the teeth. Its decoction is used in hyperacidity and with honey as an anthelmintic. The presence of Amla results in an enhanced cell survival, decreased free radical production and higher antioxidant level. (7,13,14)

Phyllanthus niruri

Local Name: Bhui Amla

Family Name: Euphorbiaceae

Parts used: Entire plant

Medicinal property: This herb acts as a protective shield and curative medicine for jaundice and other liver diseases. It is also used for menstruation and uterus problems in women. It benefits people with kidney stones. (15)

Mallotus philippinesis

Local Name: Kamala, Red kamala

Family Name: Euphorbiaceae

Parts used: Leaf, bark, seed, fruit

Medicinal property: According to ayurveda, leaves are bitter, cooling and appetizer. Fruit is heating, purgative, anthelmintic, vulnerary, detergent, maturant, carminative, alexiteric and useful in treatment of bronchitis, abnormal diseases, spleen enlargement and antidiabetic also. (7,16)

CONCLUSION

Natural products discovered from medicinal plants have played an important role in the treatment of diabetes. Treatment of diabetes mellitus as a multifactorial disease using herbal medicines requires a comprehensive approach. The present study revealed that the leaves of *phyllanthus niruri*, *Mallotus philippinesis*, *Emblica officinalis*, *Melia azedarac*, *Hibiscus rosa sinensis* plants have a potential source of useful drugs due to the presence of phytochemicals & can be utilized in the treatment of many diseases and can also be exploited for use in the pharmaceutical & cosmetic industries. However, further studies are required to isolate the active principle from the crude extract for proper drug development.

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