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Commentary on Antidiabetic Potential of Ethnomedicinal Plants

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Commentary Article

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One of the most common metabolic disorder prevailing worldwide is Diabetes Mellitus. According to WHO, 2014, about 9% of adult population was estimated to have diabetes. Diabetes is a metabolic disorder where an increased blood glucose level is seen due to inefficient production or ineffective use of insulin from pancreas. Diabetes is also known as hyperglycemia. Insulin is a hormone that regulates blood glucose level. This disorder which constitutes 9% prevailing could be the 7th leading cause of death by 2030 [1-3].

Diabetes is known to be 3 types

- i.) Type I or IDDM (Insulin dependent) or Juvenile Diabetes: This results from body's failure to produce insulin
- ii.) Type II or NIDDM (Non-Insulin dependent) or adult onset diabetes: This results from failure of the cells to use insulin properly. Or sometimes and absolute insulin deficiency.
- iii.) Gestational Diabetes: Occurs in pregnant women due to high blood pressure [4-10].

Hence, preventing or delaying the onset of type -2 diabetes should be done. This can be achieved by healthy diet, exercise, avoiding alcohol and tobacco, healthy lifestyle, normal body weight maintenance. This led to use of many anti-diabetic drugs, allopathic medicines, homeopathic medicines, ayurvedic medicines etc. Use of Traditional medicine or ethnomedicinal plants for anti-diabetic purpose is well known since ages [11-18]. Currently available drugs are of classes belonging to sulphonyl ureas, biguanides, α -glucosidase inhibitors, peptide analogs, thiazolidinediones etc. eg: Metformin, glipizide, acarbose, glyburide. Anti-diabetics are also available as generic drugs with the names given under examples.

Weight gain, increased risk of hypoglycemia, gastrointestinal disorders, anemia, oedema, heart failure, limb fractures, bladder cancer, inconvenient dosing etc. are the disadvantages of anti-diabetic drugs [19,20].

As the anti-diabetic drugs possess a number of side effects, the search for more effective and safer anti-diabetics is the key ingredient for investigation. It is known since olden days the use of plants for medicinal purpose. India alone has more than 45,000 plants known to be as medicinal plants used for treatment of various disorders [1,3,21-26]. Among them, about 400 plants are known to possess varying degree of anti-hyperglycemic or hypoglycemic activity. Antihyperglycemic activity of the plants is mainly due to their ability to restore the function of pancreatic tissues by causing an increase in insulin output or inhibit the intestinal absorption of glucose or to the facilitation of metabolites in insulin dependent processes [27-33].

Ethno medicine is the study of traditional medicine followed by ethnics in general the indigenous people. Ethnomedicine use dates back to pre-historic era.

Effect of Ethnomedicinal plants on diabetics has been discussed briefly by Jeeva S, in his review article titled Antidiabetic Potential of Ethnomedicinal Plants [4]. The review was more about diabetes and review about the disorder. Plants being used for the treatment in this disorder was mentioned but few examples if given would have justified the review. Dr. Jeeva could have done a more systematic review on use of ethno medicinal plants for anti-diabetic treatment [4].

Since the plant products have fewer 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 [4,34-50].

These days use of Ethno medicinal plants has gained back its importance considering the adverse side effects of Allopathic medicine.

The main objectives of the study should be:

- (i) to identify and explore plant species that are used locally for the treatment and prevention of various diseases,
- (ii) to document traditional recipes from medicinal plants including methods of preparation, dosage, and modes of administration,
- (iii) to select candidate medicinal plant species of high priority for phytochemical and pharmacological analyses in our subsequent studies, and
- (iv) to assess the plants conservation issues of the study area [51-72].

A brief note on the geographical study area of the plants, including the optimum temperature required for their growth, should be dealt.

Use of ethnomedicinal plants is discussed only under Gestational diabetes. More than 1200 plants are being used for diabetes treatment [73-90]. Herbal medicines are beneficial in a way that they protect the β -cells in hyperglycemic condition, increase the insulin secretion, reduce the blood glucose level, glucose absorption inhibition from intestine, promote immunity as well serve as powerful nutritional agents [91-95]. List of plants with their botanical names, family and its uses have been discussed. More emphasis should have been given to their part being used as well the traditional recipe including the method of preparation, dosage, and mode of administration [96-98]. Then the title would have been justified. If it common names and figures were included, the review could reach even the common man [99,100].

The following account gives the information of some plants used in diabetes [101-105]:

1. 100g of washed wheat grains are soaked in 250ml of water for 12 hour and filtrate should be taken in empty stomach twice daily for seven days. It has the property to reduce general debility for diabetes.
2. Night jasmine (*Nyctanthes arbortristis*) stem bark extract 100ml should be taken in empty stomach for seven days in the morning. But this extract should not be given to diabetic patient having heart problem.
3. *Garcinia xanthochymus* (Tapor Tenga) leaves are also used to cure diabetes. Here the leaf extract should be taken in empty stomach for several days. Three ground leaves dipped overnight should be taken with water and taken in empty stomach two times daily for seven days. One to three leaves should be taken in the low level to high level of diabetes. Some chronic diabetic patients who develop high blood pressure are also cured by this treatment.
4. Mixture for Diabetes: A mixture is used to prepare a tablet by using a small amount of raw *asafetida* (*Ferula assafoetida*, Linn) purchased from the traditional market and few plants (Ethno medicinal Plants Mixture for Diabetes). The plants and parts of plants named as *Mikania micrantha* Kunth, *Centela*

asiatica, Linn, Urban, Axon opus corymbosus Schult, Streblus asper Lour, Scoparia dulcis Linn, Commelina bengalensis, Linn, Polygonum strigosum R.Br. and a part of Musa sapientu. Linn

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