In vivo screening procedures for evaluating antidiabetic drugs from medicinal plants.

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ABSTRACT

Diabetes mellitus (DM) is the most common metabolic disorder affecting millions worldwide. It is recognized as a global major health problem. It is caused by an absolute or relative lack of insulin or reduced insulin activity which results in hyperglycemia and abnormalities in carbohydrate, fat and protein metabolism. It leads to micro vascular (retinopathy, neuropathy, and nephropathy) and macro vascular (heart attack, stroke and peripheral vascular disease) complications. It is estimated that there are approximately 33 million adults with diabetes in India. This number is likely to increase to 57.2 million by the year 2025. Type I diabetes (insulin dependent) is caused due to insulin insufficiency because of lack of functional beta cells. Patients suffering from this are therefore totally dependent on exogenous source of insulin while patients suffering from Type II diabetes (insulin independent) are unable to respond to insulin and can be treated with dietary changes, exercise and medication. Type II diabetes is the more common form of diabetes constituting 90% of the diabetic population. This is one of the main reasons for increasing search for improved antidiabetic drugs. Due to the side effects of the existing synthetic drugs, plants are considered a potential source for the treatment of diabetes and search is on within traditional ethnomedical practices. Although medicinal plants have been traditionally utilized for diabetes treatment, a few of them have been proved by scientific evidence. Of late vast diversity of animal models have been developed for the better grasping of the pathogenesis of DM and new drugs have been launched in the market for treatment. This paper reviews the available methods and animal models to explore the mechanism of action of drugs with potential antidiabetic property by in vivo method.

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