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Antidiabetic potency of family Aristolochiaceae: A review

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The plant species in the family Aristolochiaceae consist of various important bioactive compounds, and they are used as functional ingredients in the development of drugs to act against diseases including diabetes. Diabetes mellitus is a group of related diseases in which the blood sugar is not regulated by the body. This review focuses on identifying the glucose-lowering potencies regarding the diabetic mellitus of plant species in the family Aristolochiaceae. This was done by conducting literature research between the years 2008 to 2020 using the database Google Scholar and PubMed. The antidiabetic potency was evaluated by using alpha-glucosidase inhibition in alpha-glucosidase inhibitory assay, alpha-amylase dehydrogenase rate in alpha-amylase inhibitory assay, and glucose reduction in the diabetic rat model. Alpha amylase and alpha glucosidase are helpful to manage hyperglycemia because they delay the digestion of carbohydrates, which lowers the blood glucose level. In the diabetic rat model, root ethanolic extract of *Aristolochia ringens* showed the highest glucose reduction with the Streptozotocin (STZ) diabetogenic agent which is 113.1±1.8 mg/dl. A substance that consistently raises blood glucose levels to within the ranges known as diabetogenic agent. The leaves ethanol extract of *Aristolochia indica* showed the highest glucose reduction with the alloxan diabetogenic agent which is 5.28±0.37 mg/dl. When using dexamethasone as a diabetogenic agent, methanolic extract of the whole plant of *Aristolochia bracteolata* showed the highest glucose reduction which is 124.5±1.231 mg/dl. In α- glucosidase inhibitory assay, ethyl acetate root extract of *Aristolochia longa* showed the highest IC50 value which is 0.199±0.014 mg/ml. In the α-amylase inhibitory assay, whole plant methanolic extract of *Aristolochia indica* showed the highest α-amylase dehydrogenase rate which is 60.12 ±0.46 nm/min/mg protein. The genus *Aristolochia* in the family Aristolochiaceae was showed significant diabetes potency. Moreover, the importance of using species in the family Aristolochiaceae in the management of diabetes should be identify and accept to suitable alternative medicines in future studies.

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