

MEDICINAL PLANTS AS THERAPEUTICS AGENTS AND EMERGING THERAPIES FOR DIABETES INDUCED NEUROLOGICAL DISORDERS: A COMPREHENSIVE REVIEW

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ABSTRACT

*Diabetes mellitus (DM) is a prevalent endocrine disorder impacting over 100 million individuals globally. It arises from insufficient insulin production or ineffective utilization, leading to hyperglycemia and damage to multiple organ systems, including nerves. Among DM complications, diabetic neuropathy is significant due to its high prevalence and contribution to morbidity and mortality. Current pharmacological approaches for diabetic neuropathy often have adverse effects, prompting interest in herbal formulations as safer alternatives. Medicinal plants with neuroprotective, antioxidant, anti-inflammatory, and hypoglycemic properties have demonstrated promise in managing diabetes and its neurological complications. Notable examples include *Pouteria ramiflora*, which reduces oxidative stress and regulates apoptosis-related proteins; *Calendula officinalis*, known for improving cognitive impairment via antioxidant mechanisms; and *Hydrolea zeylanica*, which mitigates neuroinflammation and oxidative stress. Other plants, such as *Centella asiatica*, *Erythrina indica*, *Passiflora ligularis*, *Trigonella foenum-graecum*, *Ginkgo biloba*, and *Lannea coromandelica*, also exhibit therapeutic potential. These plants' phytochemicals contribute to their beneficial effects in addressing diabetic neuropathy and related complications. This review highlights the therapeutic applications of these medicinal plants, providing a comprehensive overview of their potential in managing diabetes-related neurological disorders.*

KEYWORDS: *Diabetes Mellitus, Diabetic Neuropathy, Medicinal Plants, Neuroprotection, Antioxidant Properties, Herbal Formulations*

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