

Study of Antidiabetic Potential of Polyherbal Formulation

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Abstract: *Diabetes mellitus represents a significant global health burden with increasing prevalence and associated complications. Polyherbal formulations, combining multiple medicinal plants, have emerged as promising therapeutic alternatives for diabetes management. These formulations exploit the synergistic effects of diverse phytochemical constituents, offering enhanced therapeutic efficacy while potentially reducing side effects. This review comprehensively examines the antidiabetic potential of polyherbal formulations through analysis of their phytochemical composition, mechanisms of action, in vitro and in vivo experimental evidence, clinical efficacy, standardization approaches, and safety profiles. Multiple studies demonstrate that polyherbal formulations containing herbs such as *Gymnema sylvestre*, *Momordica charantia*, *Trigonella foenum-graecum*, *Ocimum sanctum*, and *Curcuma longa* exhibit significant antidiabetic activity through inhibition of carbohydrate-digesting enzymes, enhancement of insulin secretion, improvement of insulin sensitivity, and modulation of glucose metabolism. Clinical trials indicate that these formulations produce blood glucose reduction comparable to standard antidiabetic medications while maintaining favorable safety profiles. However, standardization and quality control challenges remain critical barriers to their integration into mainstream therapeutics. This review provides evidence-based insights into the antidiabetic potential of polyherbal formulations and identifies research priorities for their development and validation.*

Keywords: polyherbal formulation, antidiabetic, herbal medicine, *Gymnema sylvestre*, *Momordica charantia*, phytochemicals, synergism, diabetes mellitus

