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The Efficacy of Curry Leaf (*Murraya koenigii*) on Glycaemic Control in Diabetic Rats: A Systematic Review and Meta-Analysis

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Curry leaf (Murraya koenigii) is used in traditional medicine for diabetes due to its bioactive compounds with glycaemic-control effects. This study systematically reviewed and meta-analyzed the effect of curry leaf on blood glucose concentration in diabetic rats, comparing its efficacy with untreated controls and standard antidiabetic drugs. The review followed PRISMA guidelines, focusing on diabetic rats as the study population. The intervention was curry leaf treatment, with untreated and drug-treated rats as controls. The primary outcome was blood glucose concentration. Comprehensive searches were conducted in AGRIS, DOAJ, EBSCO, Google Scholar, ProQuest, PubMed, ScienceDirect, Scopus until January 2025. Keywords and MeSH terms related to "diabetes mellitus," "rats," "curry leaf," and "glucose" were used with Boolean operators. Meta-analysis was performed in Review Manager using a random-effects model, with standardized mean differences (SMDs) and 95% confidence intervals (CIs). Subgroup analysis was based on intervention duration. Publication bias was assessed via funnel plots. Risk of bias was evaluated using the SYRCLE tool. Twelve studies were included. Meta-analysis showed curry leaf significantly reduced blood glucose compared to untreated controls (SMD: 6.64, 95% CI: 4.55–8.72, $p < 0.00001$). Subgroup analysis found a significant effect for 1–4 weeks, but not beyond 4 weeks. No significant differences were observed between curry leaf and standard antidiabetic drugs (SMD: - 0.10, 95% CI: -1.28 to 1.08, $p = 0.87$). High heterogeneity suggested variations in study protocols. Curry leaf lowers blood glucose in diabetic rats, with efficacy comparable to antidiabetic drugs, suggesting potential as complementary therapy.

Keywords: Curry leaf, *Murraya koenigii*, Diabetes mellitus, Blood glucose, Meta- analysis

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