Manipal Alumni Science and Health Journal 2025; 10(2): Special Edition
5th International Conference on Bioengineering for Health and Environment

PSV-11

Antidiabetic Potential of Green Chiretta (*Andrographis paniculata*): A Systematic Review and Meta-analysis of Experimental Studies

Muhammad Fareez Mohd Asri [1†], Norlelawati A.Talib[2], Sanda Aung[3*†]

[1]Kulliyyah of Pharmacy, International Islamic University Malaysia.
[2]Department of Pathology and Laboratory Medicine, Kulliyyah of Medicine, International Islamic University Malaysia.
[3*]Department of Pathology, Faculty of Medicine, MUCM, Malaysia.

Green chiretta (*Andrographis paniculata*) shows potential in glycemic control through α-glucosidase inhibition, antioxidant, and anti-inflammatory effects. This study systematically reviewed and meta-analyzed its effects on blood glucose levels in diabetic rats, compared with untreated and standard antidiabetic treatments. This review followed PRISMA guidelines using the PICOS framework: population—diabetic rats; intervention—green chiretta; controls—untreated and drug-treated rats; outcome—blood glucose concentration. A comprehensive search was conducted across AGRIS, DOAJ, EBSCO, Google Scholar, ProQuest, PubMed, ScienceDirect, and Scopus up to January 2025. Keywords and MeSH terms related to "diabetes," "rats," "green chiretta," and "glucose" were used. Two reviewers independently screened titles and abstracts of original research articles published in English, with duplicates removed. Risk of bias was assessed using the SYRCLE tool. Meta-analysis was performed in RevMan using a random-effects model with standardized mean differences (SMDs) and 95% confidence intervals (CIs). Subgroup analyses were based on treatment duration. Of the fourteen studies included, green chiretta significantly reduced blood glucose compared to untreated controls (SMD: 7.24, 95% CI: 4.93 to 9.55, $p < 0.00001$). Subgroup analysis showed that green chiretta significantly improved glycemic control compared to no treatment in both studies longer than 4 weeks and those lasting 1–4 weeks, with no significant difference between durations. Compared with antidiabetic drugs, no significant differences were observed (SMD: −0.49, 95% CI: −1.39 to 0.41, p=0.29). Both comparisons showed high heterogeneity. Green chiretta demonstrates promising potential as a herbal alternative for glycemic control, with effects comparable to standard antidiabetic agents.

Keywords: Green Chiretta, *Andrographis paniculata*, Diabetes mellitus, Blood glucose, Meta-analysis

[*]**Correspondence:** Sanda Aung
sanda.aung@manipal.edu.my