



ABSTRACT

The effect of bitter melon (*M.charantia*) consumption on fasting blood sugar in patients with type II diabetes mellitus: A systematic review

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Background: Morbidity and mortality from diabetes is a serious alarm to carry out an adequate prevention and management. Bitter melon (*M. Charantia*) is widely available and often consumed in Indonesia. It has been traditionally used in various cultures particularly in managing diabetes. This effect is believed to be due to compounds found in bitter melon that mimic insulin's action, helping to improve glucose uptake and utilization by cells.

Methods: This literature searched in three databases including PubMed, COCHRANE and ProQuest. Literature selection is carried out through the literature selection stages based on inclusion and exclusion criterias, also according to PRISMA framework. A critical review was carried out using the Center of Evidence-Based Medicine – Oxford University Methods.

Results: The four selected literatures are systemic review studies based on randomized clinical trial research. Critical review showed by *Peter et al* (2018) found that ten out of eleven literatures related to the consumption of 2 - 6 grams bitter melon per day could significantly lower fasting blood sugar than placebo (*standardized effect size value d= 0.32 to d= 0.98*). Moreover, in *Ooi et al* (2012) study found that administering bitter melon seed extract 2000 mg/day could reduce blood sugar fasting level significantly and is equivalent to administering a 2.5 mg of glibenclamide. Otherwise, *Kim et al* (2023) found that bitter melon helps lower fasting blood glucose insignificantly than placebo ($p = 0.768$), also *Yin et al* (2014) stated that from 4 RCTs, bitter melon didn't significantly lower fasting plasma glucose (WMD 2.23 mg dl⁻¹, 95% CI -14.91 to 19.37).

Conclusion: Consuming bitter melon may offer potential benefits for managing fasting blood sugar levels. Effectiveness of bitter melon can vary depending on factors such as dosage, preparation method, and individual response.

Keywords: bitter melon, *M.charantia*, fasting blood sugar, diabetes

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