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**WILEY**

[Intervention Review]

# Momordica charantia for type 2 diabetes mellitus

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## ABSTRACT

### Background

Momordica charantia (bitter melon) is not only a nutritious vegetable but it is also used in traditional medical practices to treat type 2 diabetes mellitus. Experimental studies with animals and humans suggested that the vegetable has a possible role in glycaemic control.

### Objectives

To assess the effects of mormodica charantia for type 2 diabetes mellitus.

### Search methods

Several electronic databases were searched, among these were *The Cochrane Library* (Issue 1, 2012), MEDLINE, EMBASE, CINAHL, SIGLE and LILACS (all up to February 2012), combined with handsearches. No language restriction was used.

### Selection criteria

We included randomised controlled trials (RCTs) that compared momordica charantia with placebo or a control intervention, with or without pharmacological or non-pharmacological interventions.

### Data collection and analysis

Two authors independently extracted data. Risk of bias of the trials was evaluated using the parameters of randomisation, allocation concealment, blinding, completeness of outcome data, selective reporting and other potential sources of bias. A meta-analysis was not performed given the quality of data and the variability of preparations of momordica charantia used in the interventions (no similar preparation was tested twice).

### Main results

Four randomised controlled trials with up to three months duration and investigating 479 participants met the inclusion criteria. Risk of bias of these trials (only two studies were published as a full peer-reviewed publication) was generally high. Two RCTs compared the effects of preparations from different parts of the momordica charantia plant with placebo on glycaemic control in type 2 diabetes mellitus. There was no statistically significant difference in the glycaemic control with momordica charantia preparations compared to placebo. When momordica charantia was compared to metformin or glibenclamide, there was also no significant change in reliable parameters of glycaemic control. No serious adverse effects were reported in any trial. No trial investigated death from any cause, morbidity, health-related quality of life or costs.

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**Authors' conclusions**

There is insufficient evidence on the effects of momordica charantia for type 2 diabetes mellitus. Further studies are therefore required to address the issues of standardization and the quality control of preparations. For medical nutritional therapy, further observational trials evaluating the effects of momordica charantia are needed before RCTs are established to guide any recommendations in clinical practice.

**PLAIN LANGUAGE SUMMARY****Momordica charantia for type 2 diabetes mellitus**

Momordica charantia (bitter gourd or bitter melon) is a climbing perennial that is characterized by elongated, warty fruit-like gourds or cucumbers and is native to the tropical belt. Although momordica charantia is commonly used in traditional medical practices, along with research suggesting its benefits for people with type 2 diabetes, the current evidence does not warrant using the plant in treating this disease. This review of trials found only four studies which had an overall low quality. Three trials showed no significant differences between momordica charantia and placebo or antidiabetic drugs (glibenclamide and metformin) in the blood sugar response. The duration of treatment ranged from four weeks to three months, and altogether 479 patients with type 2 diabetes mellitus participated. No trial investigated death from any cause, morbidity, health-related quality of life or costs. Adverse effects were mostly moderate, including diarrhoea and abdominal pain. However, reporting of adverse effects was incomplete in the included studies. There are many varieties of preparations of momordica charantia, as well as variations in its use as a vegetable. Further studies are needed to assess the quality of the various momordica charantia preparations as well as to further evaluate its use in the diet of diabetic people.