The efficacy of Irvingia gabonensis supplementation in the management of overweight and obesity: a systematic review of randomized controlled trials

Onakpoya I, Davies L, Posadzki P, Ernst E

CRD summary
The authors concluded that until good quality trials demonstrating its efficacy were available, Irvingia gabonensis (African bush mango) could not be recommended as a weight loss aid. The authors acknowledged the limitations of their review; their conclusion and recommendation for the need for further research seems appropriate.

Authors' objectives
To evaluate the effectiveness of Irvingia gabonensis supplementation in overweight and obese humans.

Searching
MEDLINE, EMBASE, AMED and The Cochrane Library were searched from inception up to April 2012. Search terms were reported. Conference proceedings, relevant medical journals and references of relevant article were searched, as well as the authors’ own files. No language restrictions were applied.

Study selection
Randomised controlled trials (RCTs) that compared orally administered Irvingia gabonensis with placebo for weight reduction in overweight (BMI 25 to 29.9 kg/m²) or obese (BMI ≥30 kg/m²) participants were eligible. The included trials had to report body weight or body composition as an outcome measure. Trials were included irrespective of whether they incorporated lifestyle modifications.

All participants in the included trials were of African origin. The daily dosage of I. gabonensis varied between trials. Two RCTs had I. gabonensis as the sole intervention; the remaining RCT used I. gabonensis with another herbal supplement. Participants in two RCTs had a restricted daily calorie intake. The intervention period ranged from four to 10 weeks.

Two reviewers independently assessed the studies for eligibility.

Assessment of study quality
Two reviewers assessed trial quality using the Consolidated Standard of Reporting Trials Statement and the Preferred Reporting Items for Systematic Review and Meta-analyses guidelines. Items covered included randomisation, allocation concealment, blinding, baseline similarity, sample size calculation and attrition, and whether or not intention-to-treat analysis was used. Disagreements were resolved through discussion.

Data extraction
Data were extracted by two reviewers.

Methods of synthesis
The studies were combined in a narrative synthesis.

Results of the review
Three RCTs (two parallel and one cross-over) were included in the review (208 participants, range 72 to 120). None of the trials reported appropriate randomisation or allocation concealment. No RCTs reported outcome assessors as being blinded; two RCTs, patients and care provider were blinded. One RCT did not have similar characteristics at baseline. None of the RCTs performed an intention-to-treat analysis or reported sample size calculation or attrition.

All three trials reported a statistically significant reduction in body weight with Irvingia gabonensis compared with placebo (12.8 kg versus 0.7 kg; 4.1 kg versus 0.1 kg; 11.9 kg versus 2.1 kg). Significant weight loss continued up to a 10 week period (>5% from baseline). Two RCTs reported significant reductions of body fat with I. gabonensis compared with placebo (6.3% versus 2.0% and 20.1% versus 4.0%), but one RCT did not.
All RCTs reported statistically significant changes in waist circumferences with *I. gabonensis* (-16.2cm versus -53cm; -6.2cm versus +5.5cm; -21.9cm versus -1.0cm). One RCT reported significant reduction in hip circumference with *I. gabonensis* (-4.5cm versus -0.7cm) compared with placebo.

All RCTs suggested positive effects of *I. gabonensis* on the blood lipid profile.

Two RCTs reported adverse events including headache, sleep difficulties, and flatulence. There were no significant differences between *Irvingia gabonensis* and placebo.

**Authors' conclusions**

Until good quality trials were available that demonstrate its efficacy, *Irvingia gabonensis* could not be recommended as a weight loss aid.

**CRD commentary**

The review question and inclusion criteria were clear. Efforts were made to find published and unpublished studies, which minimised the risk of publication bias. No language restrictions were applied, which reduced potential language bias. Attempts were made to minimise reviewer errors and bias in the review process.

Trial quality was assessed using appropriate criteria and the results were reported. A narrative synthesis was appropriate given the variation in trial methodology. The authors acknowledged the limitations of their review including small sample sizes, clinical heterogeneity, poor quality trials, generalisability, and possible publication bias.

The authors’ conclusion and recommendation for the need for further research seems appropriate.

**Implications of the review for practice and research**

**Practice:** The authors stated that while waiting for the further evidence, *Irvingia gabonensis* could not be recommended as a weight loss aid.

**Research:** The authors stated that larger rigorous studies were needed including volunteers from other racial background to enable a broader and more objective evaluation of the effects of *I. gabonensis*. Future studies should be longer in duration and included large post-marketing surveillance studies to determine safety.

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