

The 13th European Nutrition Conference, FENS 2019, was held at the Dublin Convention Centre, 15–18 October 2019

Effect of different doses of *Moringa oleifera* in postprandial glucose. Influence of participants' glucose control status

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Abstract

The multipurpose plant *Moringa oleifera* (MO) has shown a variety of *in vitro* activities potentially beneficial for health and evidences are also numerous in animal models. However, the exact composition of the plant is highly variable depending on the area, culture and post harvesting conditions and the effects in humans are scarcely studied. This is a pilot study of the effect of different doses of MO from an Iberian Peninsula cultivar on postprandial glucose level in non-diabetic subjects. Five adult subjects (40 to 70 years, 3 males) with normal renal and hepatic function were included. Two had normal fasting glucose and 3 had pre-diabetic fasting glucose. A standard breakfast plus, respectively, one placebo capsule (PLC), or 1, 3 and 6 capsules containing 400 mg of MO dry leaf powder (MO-1cap, -3cap and -6cap) were consumed by each subject on 4 consecutive visits, one week apart. The basal and postprandial (30, 60, 90, 120, 150 and 180 min) glucose was measured. The mean glucose change from baseline (ΔGlc) at each measure time was calculated and compared between treatments with the Wilcoxon tests and considered significant at $P < 0.05$ level. The postprandial curves were also studied separately in pre-diabetic subjects. A difference was found 90 min after breakfast in ΔGlc for the MO-6cap compared to the MO-1cap, being lower in MO-6cap. No more significant differences were observed due to the small number of subjects and high variability in glucose values among subjects. However, the graphical representation of separated curves for the three pre-diabetic participants showed that all three MO doses led to values always below those with PLC. In addition, during the first experimental hour all MO doses showed lower ΔGlc than PLC while this was not the case when all subjects were studied. No adverse events occurred during the experiment. The study, thus, showed a trend to lower glycemic postprandial response with MO leaf powder which seems to be more evident in pre-diabetic subjects than in normoglycemic subjects and especially during the first postprandial hour. The MO-6cap seems to be the election daily dose for a long term intervention study on the glycemic control with MO in pre-diabetic subjects.

Acknowledgements

The study received financial support of Ministerio de Economía, Industria y Competitividad (MINECO), AEI and FEDER, EU (ref: AGL2017-86044-C2-1-R).

Conflict of Interest

There is no conflict of interest