Clinical study of the putative insulin sensitizing effect and antidiabetic mechanism of multiple dose Fenugreek capsules administration in healthy human volunteer

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Fenugreek is plant cultivated since ancient times and used as a spice and medication, especially as an antidiabetic, with no scientific proof on the mechanism of action. A double blind, multiple dose, randomized, placebo controlled clinical study was performed in 13 healthy human volunteers (Fenugreek treatment n=8 and Placebo treatment n=5) to assess the insulin sensitivity with the hyperinsulinemic euglycaemic clamp (HEG) test before and after a 10 day treatment with t.i.d. 1000 mg Fenugreek capsules (daily total of 3000 mg). The HEG test is the gold standard for exactly measuring insulin sensitivity. The average rate of glucose infusion (GIR) to compensate for the hypoglycaemic effect of the administered insulin infusion is an accepted measure of tissue insulin sensitivity (De Fronzo et al.).

The pre-treatment values did not differ between the two treatment groups. There was no significant change of the GIR in the Placebo group. A statistically significant insulin sensitivity increase was found before (6.63 SD =3.65) and after (8.50 SD=2.86) treatment in the fenugreek treatment (n=8) group. The largest increase in insulin sensitivity (about 97%) with fenugreek treatment was observed in two subjects having pre-treatment very low insulin sensitivity levels (from 2.28 SD=0.34 to 4.50 SD=0.51) compared to the other 6 subjects (from 8.08 SD=2.91 to 9.33 SD=2.36). A relatively much smaller increase after fenugreek treatment was observed also in the other 6 subjects, especially in those with the highest pre-treatment values. This indicates that a clinically beneficial effect of fenugreek treatment can be expected in diabetic or pre-diabetic patients by normalizing low insulin sensitivity. The results clarify for the first time the till now unknown antidiabetic mechanism of fenugreek determining it as an insulin sensitizing effect. Authors recommend because of the limitations of this study further large scale clinical trials in diabetic patients or in patients with impaired glucose tolerance. These should be followed with studies comparing the Fenugreek effect with those of registered insulin sensitizer drugs.