Fenugreek with reduced bitterness prevents diabetes accompanied with obesity

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Fenugreek (Trigonella foenum-graecum L. Leguminosae) is one of the oldest medicinal plants, much cultivated in India and Mediterranean countries. It is one of the spices which are contained in curry powder. Fenugreek has various medicinal effects such as antinourishing, lactation-stimulating, treatment of indigestion, and anti-inflammatory. Recently, hypoglycemic effect of fenugreek on type1 and type2 diabetes was reported. However, its mechanism is still uncertain. And it is difficult to apply fenugreek to foodstuff, because fenugreek has a bitter taste.

Furostanol saponins contained in fenugreek are major cause for bitterness. Enzymatic cleavage at the O-linked sugar chain of furostanol saponins yielded fenugreek with reduced bitterness (FRB). To evaluate the effect of FRB on metabolic syndrome and lipid in obese diabetic KK-Ay mice. Hyperglycemia accompanied with obesity was ameliorated in KK-Ay mice fed with FRB. Glucose tolerance was also improved in mice fed with FRB. This treatment increased the expression of peroxisome proliferator-activated receptor γ (PPARγ) and PPARγ target genes, while decreased slightly the expression of macrophage-specific genes in white adipose tissue. Moreover, hyperlipidemia and hepatosteatosis were ameliorated in mice fed with FRB. Interestingly, this treatment decreased the expression of sterol regulatory element binding protein 1c (SREBP1c) and SREBP1c target genes in liver. These results indicate that FRB improves the disorder of glucose and lipid metabolism. Consequently, FRB may be useful for ameliorating diabetes accompanied with obesity.

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Reduction of the cut-off of waist circumference does not seem to modify the prevalence of metabolic syndrome in a population with morbid obesity

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Metabolic syndrome (MS) is described by the presence of abdominal obesity, hyperglycemia, hypertension and dyslipidemia, associated with increased cardiovascular risk. In this study MS prevalence in an obese population was evaluated according to ATP-III-2001, ATP-III-2005 and IDF-2005. Patients were evaluated in their first morbidity obesity appointment, regarding anthropometric variables, blood pressure, fasting plasma levels of glucose, LDL-C, HDL-C and triglycerides. 262 women having 40.9 ± 11.3 years old and 45.4 ± 6.3 Kg/m² BMI were evaluated. MS was observed in 63.0%, 66.8% and 66.4%, according to ATP-III-2001, ATP-III-2005 and IDF-2005, respectively. Hypertension prevalence was 83.2% (218/262 revealed systolic blood pressure >/= 130mmHg and/or diastolic blood pressure >/= 85mmHg, or under therapeutic). 38.9% revealed triglycerides concentration >/= 150mg/dL, or under therapeutic. Waist circumference was > 85cm in 98.5% and > 102cm in 99.2%. Fasting plasma glucose (FPG) was >/= 110mg/dL in 39.3% and 48.5% >/= 100mg/dL. 43.9% showed HDL-C < 40mg/dL. 41.2% had LDL-C > 160mg/dL. 62.5% had triglycerides concentration > 150mg/dL.

This study revealed that MS prevalence in the analyzed samples was high. The reduction of cut-off of waist circumference did not have influence on the prevalence of MS in this sample.