Fenugreek (*Tigonella foenum-graecum)*

Common Indications

- Blood sugar regulation
- Cholesterol lowering properties
- Lactation support
- Increased sex drive in men and women

General Comments

Fenugreek is commonly used in many food products in Asia and the majority of the medicinal use is derived from the seed of the plant. This is compound with probable beneficial properties, however, more research is needed in exploring this compound.

Benefits & Mechanism of Action

GLYCEMIC CONTROL

Aqueous extract of the seeds has shown to have hypoglycemic properties. In one study, a proposed mechanism of action of fenugreek on glucose lowering effects in the body can have effects on adipocytes and liver cells that would lead to activating insulin signaling pathways[1]. The main pathway that is stimulated is the tyrosine phosphorylation of the insulin receptor, insulin receptor substrate I, and the p85 subunit of phosphatidylinositol 3-kinase without affecting protein kinase B[1-3]. Other studies have concluded that fenugreek behaves similarly to insulin, but it may be up to 35% less potent in stimulating glucose uptake[3]. Additionally, fenugreek can have a synergistic effect with other compounds, resulting in glucose absorption inhibition and promotion of pancreatic function to lower blood glucose[1].

LIPID CONTROL

Numerous animal studies have been performed and have shown benefit with fenugreek use in lowering cholesterol. One animal study displayed in rats that were fed a high cholesterol diet, the rats that were given fenugreek had reduced hypercholesterolemia. According to studies, fenugreek has an antioxidant effect in the body from the ethyl acetate compound[4]. Other mechanisms have been proposed on how fenugreek lowers cholesterol. One such proposal is due to the fiber-rich gum portion of the seed, which can cause reduction in the rate in hepatic synthesis of cholesterol. Additionally, fenugreek increases the fecal bile acid and cholesterol

excretion and is likely both of these mechanisms contribute to fenugreek's effect on the body[4-6].

LACTATION

Fenugreek has been shown to increase milk production in breastfeeding women. However, safety in lactation has not been established by studies, currently. There has been conflicting evidence on the increase in milk production as well. Clinical studies have been shown fenugreek is less effective at increasing milk production compared to Indian borage or palm date[1,7]. Fenugreek tea or capsules containing 1-2 grams, taken up to 3 times daily, starting 1-2 days after delivery for up to 244 days have been used[7]. One study explored dosages used to increased milk supply up to 1-6 grams daily[8].

Dose

- General: 2-6 mL/day (1:2)
- Diabetes: 50-100 gram seed daily in divided doses
- Lipid Lowering: 100 gram seed daily divided doses
- Lactation: 1-6 grams daily, divided doses[8]

Standardization

The fenugreek seeds contain 6-10% lipids (mostly unsaturated), 44-59% carbohydrates (mostly glactomannans) and 20-30% proteins (arginine, alanine, glycine and are low in lysine and methionine).

Caution & Side Effects

- Avoid in patients allergic to chickpeas, peanuts and coriander due to possible cross-sensitivity reactions
- Safety in pregnancy and lactation is unknown
- CAUTION!! Potential additive effects with other glucose lowering agents, monitor appropriately.
- GI effects: diarrhea, dyspepsia, abdominal distention and flatulence
- Oral doses should not exceed 350 mg/kg

References

GLYCEMIC CONTROL

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LIPID CONTROL

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LACTATION

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