



## Fenugreek alkaloids: A medicinal commodity

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Fenugreek (*Trigonella foenum-graecum* L.) commonly known as methi, is an annual herb that belongs to the Fabaceae family. It's one among the prominent spices utilized in cookery. The leaves and seeds of fenugreek are also utilised in medicative applications and is one among the oldest practices of human history. Fenugreek is native to the eastern Mediterranean countries. It is cultivated in Africa, India, China, Morocco, Egypt and rarely in England. India is amongst the leading producers of methi in the world. Seeds are sown directly. The plant attains a height of 30-80 cm. The leaves are trifoliate and flowers are white that appear in early summer. They develop into long, slender brownish-yellow pods containing the brown seeds. The seeds are collected during the autumn. Best known for presence of pungent aromatic compounds in their seeds, methi provides colour, flavour and aroma to food. It is orally consumed as a leafy vegetable. It has been used as a medicinal plant since more than 4000 years in various parts of world. Because of this reason, it is known as the oldest medicinal plant in the history of human race.

Fenugreek contains variety of chemical constituents together with steroidal sapogenins. Diosgenin component has been found within the oily embryo of fenugreek. Alkaloids like Trimethylamine, Neurin, Trigonelline, Choline, Gentianine, Carpine and Betain are found in fenugreek. Alkaloids are naturally occurring chemical compounds that contain nitrogen atoms. Medicative use of alkaloid-containing plants incorporates a long history and so when the first alkaloids were isolated in the nineteenth century, they in real time found application in clinical practice. A large number of alkaloids are still utilized in medication in the form of salts. Alkaloids have various and vital physiological effects on humans and other animals. Trigonelline is one among the foremost alkaloids found in

fenugreek seeds. It is a methyl betaine derivative of nicotinic acid, aids in curing diabetes and central nervous system disorders. It conjointly exhibits antibacterial, antiviral and memory improving activities.

According to Ayurvedic texts, Greek and Latin pharmacopoeia fenugreek seeds are of medicinal importance as the herb is an aphrodisiac. However, modern vaidyas use it more for digestive and respiratory problems stemming from an excess of phlegm. Ancient Egyptian ladies made use of fenugreek to ease parturition and increase lactation. The modern Egyptian ladies are still exploiting this herb to induce relief from menstrual cramps. A very popular 'hilba tea' is made from methi to ease various kinds of abdominal pain. The Chinese call it

hu-lu-ba, and use it for treating the same. The methi seeds have numerous medicinal properties because it is hypocholesterolemic, gastric stimulant, antidiabetic agent, galactagogue, anticancerous. It is useful for anorexia, lactation aid and has hepatoprotective effect. Hypocholesterolemic and antidiabetic effects of methi are attributable to the



intrinsic dietary fibre constituents having promising nutraceutical importance. Fenugreek has pleasantly bitter, slightly sweet seeds. Though this cool season crop is cultivated in many various parts of the world, its uses and people's awareness of its worth vary considerably. Better known for pungent aromatic compounds in the seed, methi provides flavour, colour and aroma to foods. This plant is employed as a daily meal preparation and as a medicinal plant in various parts of the globe. In India, the green leaves and stem of the plant are used to cook a very popular winter vegetable 'fresh methi ka saag' and the seeds are used as seasonings for various dishes year-round. The seeds can be ingested raw as sprouts and used medicinally. The Ethiopians and Egyptians use fenugreek in baking bread, and the Swiss use it for

flavouring cheese. Fenugreek is especially used to make spice blends for stews and soups in the United States of America (Passano, 1995). Fenugreek has been best-known from centuries as a cooking spice in Europe and remains a very popular ingredient in pickles, curry powders and spice mixtures in India, Bangladesh, Pakistan and other Asian countries. Methi is being utilized in the folk medicines for the treatment of cellulitis, tuberculosis and boils. Fenugreek remained a key ingredient in a nineteenth century patent medicine for dysmenorrheal and postmenopausal symptoms. Dietary fibre from fenugreek blunts glucose after a meal. The mechanism for these effects haven't been completely elucidated. Methi seeds have 45.4 per cent dietary fiber (13.3% soluble insoluble), and the gum consists of mannose and galactose. The latter compounds facilitate in reducing glycaemic effect. The hypoglycaemic effect of fenugreek has been particularly reported in humans and animals with type 1 and type 2 diabetes (Roberts, 2011).

Fenugreek seeds are taken orally as a substitute of insulin for reducing blood sugar. Madar and Stark (2002) in an investigation documented that the extracts from fenugreek seeds lower blood glucose levels. Due to its maple aroma and characteristic flavor it is used in imitation of maple syrup. Spices consumed in diet positively influence the pancreatic digestive enzymes. Platel and Srinivasan (2000) through an experiment showed that dietary curcumin, piperine, capsaicin, fenugreek, ginger and asafoetida conspicuously increased the lipase activity of pancreas in rats when fed with spicy diets for 8 weeks. Non-starchy polysaccharides enhance the bulk of the food

and increase the bowel movement. Non-starchy polysaccharides aid in smooth digestion whereas high fibre of fenugreek assists in relieving constipation ailments.

Fenugreek is anti-diabetic, anti-cancer, anti-fertility, anti-microbial, anti-parasitic, and hypo-cholesterolemic and a lactation stimulant. Fenugreek has several vital bioactive compounds. It is used as a food adhesive, stabilizer, gum and emulsifier. Methi is employed to make various types of bakery products. Based on the several health advantages and various past reported scientific findings as mentioned, fenugreek can be recommended as an integral part of the dietary regime as its liberal use is safe and various health benefits can be exploited from this natural herb.



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