**Review Article**

Fenugreek: A Health promoting Food

**Madiha Khan Niazi**¹ and **Farooq Hassan**²

¹University Institute of Diet and Nutritional Sciences, Faculty of Allied Health Sciences, The University of Lahore, Lahore, Pakistan
²Punjab Healthcare Commission, Lahore, Pakistan

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**Corresponding Author:**
Madiha Khan Niazi
University Institute of Diet and Nutritional Sciences, Faculty of Allied Health Sciences, The University of Lahore, Lahore, Pakistan

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**ABSTRACT**

Lifestyle decisions, food habits, stress, environmental variables, and synthetic substances are all contributing to the rapid advancement of human diseases. It has been demonstrated that the herb fenugreek is effective in treating conditions like cancer, high cholesterol, diabetes, and inflammation. Fenugreek extracts and powders have been successfully used in the culinary and pharmaceutical industries because of its therapeutic properties. This review aim was to emphasize the significant nutritional advantages and therapeutic uses of fenugreek as a strong treatment for a range of diseases.

**INTRODUCTION**

*Trigonol foenum-graecum* L., also known as fenugreek, is a significant spice crop utilized in human diets. It can be utilized for nutritional, nutraceutical, medical, and therapeutic purposes because it is abundant in phytochemicals, alkaloids, carbohydrates, steroidal saponins, amino acids, and minerals [1]. It has been employed as an extruded product, an emulsifier and stabilizer in culinary items, and as a flavor enhancer in traditional cuisine. The physiological and nutraceutical benefits of fenugreek, which support its prospective use in creating a variety of pharmaceutical and functional food items[2].

**Fenugreek’s nutritional value**

Fenugreek is a plentiful source of bioactive compounds, including fiber, proteins, carbs, and lipids as depicted in table 1 [3]. Minerals including potassium, magnesium, calcium, zinc, manganese, copper, and iron are also present. Additionally, it contains sulfur-containing amino acids as well as amino acids including aspartic acid, glutamic acid, leucine, tyrosine, and phenylalanine [4]. According to studies, the proteins in fenugreek are of higher quality than those found in other plants.

**Table 1: Nutritional composition of fenugreek**

<table>
<thead>
<tr>
<th>Fenugreek</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>3.0mg</td>
</tr>
<tr>
<td>Copper</td>
<td>0.2mg</td>
</tr>
<tr>
<td>Manganese</td>
<td>0.1mg</td>
</tr>
<tr>
<td>Magnesium</td>
<td>22mg</td>
</tr>
<tr>
<td>Vitamin B6</td>
<td>0.3mg</td>
</tr>
</tbody>
</table>

Alkaloids, flavonoids, and polyphenols such quercetin, luteolin, vitexin, 7, 4-dimethoxy flavonones, aglycones, kaempferol, quercetin, tricin, and naringenin are also present in substantial amounts in fenugreek as shown in figure 1 [5]. The majority of the flavonoids in fenugreek, according to a phytochemical analysis, occur as...
Fenugreek against gall-stone and gastric ulcer

In a rat model, the antiulcer properties of *Trigonella foenum-graecum* seed [13]. They discovered that the aqueous and gel components of fenugreek seeds have an impact on ant-secretory activity and mucosal glycoproteins. Additionally, they discovered that the combination of fenugreek and onion had the strongest anti-lithogenic effects, reducing cholesterol gallstones by 76%, 27%, and 75%, respectively, when onion was supplemented with fenugreek [14]. Additionally, it increases total bile acid and biliary phospholipid levels and helps prevent and treat cholesterol gallstones. These disorders respond favorably to active components like flavonoids found in fenugreek seeds, gel, and aqueous extract [15].

Fenugreek against neurological disorders

For the treatment of neurological illnesses like depression, Alzheimer's, and Parkinson's, fenugreek has been studied as a potent medicinal plant [16]. Studies have demonstrated that fenugreek saponins, 5% fenugreek seed powder, and ethanolic extract of fenugreek were effective in lowering the prevalence of Parkinson disease, attenuating depression, and enhancing neurotransmission [17]. Through the use of animal models, the mechanisms behind the antidepressant effects of fenugreek flavonoids. These investigations add to the growing body of research showing that fenugreek components have profound neuroprotective effects [18].

Effect of *Trigonella* against obesity

Numerous studies have demonstrated that hydroxyl isoleucine reduces insulin resistance brought on by obesity. It reduced the activity of a catalyst that changes tumor necrotic factor from mTNF to sTNF [19]. Additionally, fenugreek's ber content reduces appetite, which is enhanced in obese experimental units. Fenugreek supplements taken orally have been demonstrated to significantly accelerate weight loss over a short period of time. Fenugreek-derived furanostolic saponins (FenfuroTM) have been shown to improve glucose tolerance, improve insulin sensitivity, and decrease insulin-activated protein kinase B's phosphorylation [20].

Fenugreek in asthma treatment

The 10% heights of FEV1 and FEV1/FVC were increased by fenugreek seed extract, and the serum IL-4 levels were lowered. Flavonoids inhibited the production of Charcot-Leyden and eosinophil cationic proteins, who also have antioxidant capabilities. Asthma patients' results were improved by fenugreek and honey syrups, with the latter being superior to the former when combined. To comprehend its efficacy, more study is required [21].
CONCLUSIONS

Fenugreek has been found to have nutritional and pharmacological uses, such as antioxidants, anti-inflammatory agents, and clinical applications. Further research is needed to isolate bioactive components, synthesize recombinant pharmaceutical proteins, and conduct clinical studies.

Authors Contribution

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

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REFERENCES


