



PHYTOCHEMICAL SCREENING OF FENUGREEK (*TRIGONELLA FOENUM-GRAECUM L.*) LEAF EXTRACT IN SOME ORGANIC SOLVENT.

¹Dr. Prakash Solanki , ^{2*}Dr. Sandeep Kumar Gohar and ³Dr. Ashok Barua

¹⁻³ Assistant Professor Department of Chemistry
Govt. Holkar Science College, Indore (India).

ABSTRACT :

Fenugreek a native of South Eastern Europe and West Asia is cultivated as a Methi leaves vegetable, condiment and as a medicinal plant. Fenugreek is used as a spice, vegetable and medicinal plant. Green leafy vegetables are the micronutrient wealth of India and form an important component of balanced diet. The samples revealed good amounts of alkaloids followed by moderate amounts of saponins. Contents were obtained for Hexane, Ethanolic and Acetone extracts for each of the Methi leaf extract. Their antioxidant property protects cells of different organs of human beings against free radicals and free radical mediated diseases.



KEYWORDS : *Phytochemicals, medicinal plant, vegetable and Methi leaf.*

1. INTRODUCTION

Fenugreek a native of South Eastern Europe and West Asia is cultivated as a leafy vegetable, condiment and as a medicinal plant. Fenugreek is used as a spice, vegetable and medicinal plant. Bakery industry in India is considered as one of the major food processing industry with an annual demand of over 2758 MT¹. Plants possess medicinal and drug activities. Medicinal plants are used by 80% of world population in developing countries². The green leafy vegetables occupy an important role among the food crops as these provide adequate amount of many vitamins and minerals such as vitamin C, riboflavin, folic acid and minerals like calcium, iron and phosphorous. They are also good sources of 2 to 7 percent proteins. To relieve a sore throat, a strong methi brew can be prepared by simmering two tablespoons of the seeds in a quart of cold water for a half hour. After allowing it to cool, strain it and use the entire quantity as a gargle³. Fenugreek (*Trigonella foenum-graecum* L.) being rich in phytochemicals has traditionally been used as a food, forage and medicinal plant⁴. Fenugreek is rich in fiber, protein, and due to its valuable bioactive components has promising therapeutic and application⁵. The antifungal activity of fenugreek was also reported⁶. This plant has promising nutraceutical value⁷. They have also been reported to exhibit pharmacological properties such as antitumor, antiviral, antimicrobial, anti-inflammatory, hypotensive and antioxidant activity^{8,9}. In the past few decades, a worldwide increase in the incidence of bacterial infections as well as a rise in the resistance of some species of bacteria to different antibiotics used in medicinal practices has been observed. Therefore, new prototype antimicrobial agents are needed to address this situation¹⁰.

MATERIALS AND METHODS :

Fenugreek leaves were freshly procured from Choithram Mandi, Indore in December 2017. Leafy materials were removed washed with tap water and KMnO₄ to make them free from pesticides

and insecticides. The extraction and analysis were carried out immediately in the dim light at room temperature by soxhlation process.



fig. 1 Fenugreek Leaves (*Trigonella Foenum-Graecum L.*)

Table -1
Phytochemical analysis of Fenugreek leaf extract of Hexane, Ethanol and acetone.

Phytochemical	Name of the Test	Hexane extract	Ethanol extract	Acetone extract
Alkaloids	Mayer	Positive	Positive	Positive
Flavonoids	Lead acetate	Positive	Negative	Negative
Carbohydrates	Molisch	Negative	Negative	Negative
Amino acids	Biuret	Negative	Negative	Negative
Tannins	Ferric chloride	Negative	Positive	Negative
Terpenoids	Trim-Hill	Negative	Negative	Negative
Saponins	Foam	Negative	Positive	Positive

RESULT AND DISCUSSION :

Spices and herbs have great medicinal value in Indian homes and proved to arrest, reduce, and terminate most of the diseases by the use of medicines prepared out of them. The preliminary phytochemical screening of the fenugreek leaves extracts using Hexane, Ethanol and Acetone solvents is reported in Table 1. The three organic solvents such as hexane extract showed positive result for the presence of Alkaloids and Flavonoids while the Ethanolic extract as well as Acetone extract showed the presence of Alkaloids and Saponins.

CONCLUSION :

The various scientific reports showed that Fenugreek, known for its hypoglycemic and anti-inflammatory activity, may be a promising protective medicinal herb. Fenugreek is rich in fiber, protein, and due to its valuable bioactive components has promising therapeutic application.

REFERENCE :

1. A. Bala, K. Gul and C.S. Riar, (2015), Functional and sensory properties of cookies prepared from Wheat flour supplemented with cassava and water chestnut flours. *Cogent Food & Agriculture* 1(10): 1-7.
2. H. Hashim, E.L. Kamali, and Y. Mohammad, (2010), Antibacterial activity and phytochemical screening of ethanolic extracts obtained from selected Sudanese medicinal plants, *Current Research Journal of Biological Science* 2(2): 143-146.
3. R. Dhakarey, G. Uppadhyay, B.N. Singh, H.B. Singh, D.Prakesh, and S. Kumar (2005), Phenolic content and antioxidant potential of Rhododendron species. *Indian Journal of Agricultural Biochemistry*, 18(1): 40-43.AA
4. D. Puri, (1998), Therapeutic potentials of fenugreek: *Indian J Physiol Pharm* 42(3): 423-424.

5. E. Basch, U. Catherine, K. Grace, S. Philippe and S. Michael (2003), Therapeutic applications of fenugreek. *Altern Med Rev*, 8: 20-27.
6. E.A. Palombo, and S.J., Semple, (2001), Antibacterial activity of traditional medicinal plants. *J. Ethnopharmacol.* 77: 151-157.
7. K. Srinivasan, (2006), *Food Rev. Int.*, 22(2): 203-224.
8. M.M. Cowan, (1999), Plant products as antimicrobial agents, *Clinical Microbiology Reviews*, 12: 564-582.
9. K. Shetty, (1997), Biotechnology to harness the benefits of dietary phenolics; focus on Lamiaceae, *Asia Pac J Clin Nutr*, 21 : 79-102.
10. S.C. Sati and S. Joshi, (2010), Antibacterial potential of leaf extracts of *Juniperus communis* L. from Kumaun Himalaya. *Afr. J. Microbiol. Res.*, 4: 1291-1294.



Dr. Prakash Solanki

Assistant Professor Department of Chemistry , Govt. Holkar Science College,
Indore (India).