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Investigation Of Isolated Gelatinous Protein Polymer From Fenugreek Seeds For Biological Studies

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ABSTRACT: Isolation of gelatinous protein polymer material from fenugreek seeds which is a traditional herb and has many applications in various 1elds like as therapeutic, cosmetics and food nutrients. Gelatinous protein polymer material will be used for investigation in therapeutic 1elds i.e., for antibacterial, antioxidant, antifungal, antidiabetic, anti-inflammatory, anti-cancer, immunomodulator, antitoxic, anticataract [1,2]. Fenugreek seeds are natural, non-toxic, non-pollutant, eco-friendly, easily available in the market at low cost. Fenugreek seeds have a high nutritional value of protein 25%. Therefore, it has been selected for extraction of gelatinous protein polymer material. Protein polymers are obtained from natural resources, while the remaining are chemically synthesized and used. Therefore, a large number of natural and synthetic polymers are presently available as pharmaceutical excipients. Plants are an excellent source of drugs and a large proportion of currently available drugs have been either derived directly or indirectly from the plants.

KEYWORDS - Gelatinous, Therapeutic, Natural, Protein polymer, Pharmaceutical, excipients.

INTRODUCTION: Fenugreek seeds of the Fabaceae family are called methi. It is widely used as medicine for the treatment of wound, abscesses, arthritis, bronchitis and digestive disorders for a long time [3]. Krystyna et al reported that Fenugreek is a unique spice crop whose properties are being discovered with the renewed interest in traditional medicine [4]. As rich sources of protein, lipids, fatty acids and minerals. This eco-friendly plant has a high number of potential applications in the production of food, medicine, cosmetics and pharmaceutical industries due to its nutritional value. A number of medicinal applications of fenugreek seeds are reported that are antidiabetic, antioxidant, antibacterial, anti-cancer, immunomodulator, antitoxic anticataract etc. Because of the high potential value of fenugreek seeds many researchers have reported diIerent isolation techniques from time to time.

METHODOLOGY: Ward et al reported gelatin is a protein which has a speci1c amino acid sequence and it was extracted by animal skin, bones and connective tissues. Extracted animal gelatin has been commonly used in food, medicine, photography and cosmetics. But animal gelatin has many side effects [5]. Isolation of mucilage from fenugreek seeds was carried out by water extraction of whole crushed fenugreek seeds using 100gm fenugreek seed, 1500ml water, acetone and muslin cloth. Mucilage was used in mouth dissolving tablets [6]. A number of investigations have been done on the protein of Fenugreek seed. Rao et. al studied the protein quality of fenugreek seeds and their supplementary eIect using whole fenugreek seeds [7]. Samira et al studied a comparison of chemical, structural and functional properties of fenugreek seeds protein using hexane and acetone [8]. Fenugreek seed husk powder has been used as a granulating agent for binding model drugs. Binder solution was prepared by fenugreek husk powder, water, lactose, magnesium stearate, talk and aerosol. Swelling capacity and viscosity building ability of husk was favorable for as a good granulating agent [9].

RESULTS AND DISCUSSION

Various parts of methi leaves and seeds were tested for antibacterial, antioxidant, antidiabetic, chemopreventive, anticataract, anti-inflammatory, and immunomodulatory agents [10]. Kristyna and Jadwiga et al fenugreek seeds and leaves used for testing of productivity, nutritional value, and uses [11].

Literature survey reveals that fenugreek seeds are used as a whole for various but no one worked on isolation of gelatinous protein polymer material from fenugreek seed.

Till date there is a big gap in isolation technique of gelatinous protein polymer material, application in various 1elds and its comparative study with available gelatin material. Till date animal source of gelatinous protein polymer material is used for various purpose their alternatives are agar agar gelatin, B- Hydroxy propyl methyl cellulose (HPMC) gelatin34, corn gelatin is tried but these are not successful in the market.

Therefore, novel techniques will be developed to 1ll the above research gap which is water extraction of gelatinous protein polymer material from fenugreek seeds. It is used for investigation of physical, chemical and biological properties.

CONCLUSIONS

Extraction of protein as gelatinous protein polymer material from fenugreek seeds by following technique: -

1. Water extraction
2. Solvent extraction
3. Salting out of protein polymer material by (NH4)2SO4

After extraction of gelatinous protein polymer material from fenugreek seeds will be subjected for analysis of

1 Physical properties: - viscosity, gelling property, stability and foaming property.

2 Chemical properties: - amino acid sequence.

3 Comparative study of extracted material with reported whole fenugreek seeds and with traditionally used animal gelatinous protein polymer material.

Further extracted fenugreek gelatinous protein polymer material is used for investigation of biological properties antibacterial, antioxidant, antifungal antidiabetic and anti-inflammatory.

REFERENCES

1. Balaraman R, Dangwal S, Mohan M, India J. Pharma, 44, 568-575, (2006).
2. Mitra A, Bhattacharya D.P., India J. Pharma, 3, 14-18, (2006).
3. Rashmi Yadav, Pratibha Chowdhary, Int. J. Pharma. 2, 65-70, (2017).
4. Krystyna Golaszewska, Jadwiga Wierbowska, J. Elementology. 22(3), 1067-1080, (2017).
5. Ward, A.G., Courts A, Academic Press New York, (1977).
6. Ravi Kumar, Swati Patil, M.B. Patil, Sachin R, Int. J. Pharma Tech Research, 1(4), 982-996, (2009).
7. R. D. Sharma, Food Chemistry, 24(1), 1-9, (1987).
8. Samira Faeyzi, Mehdi Varidi, Mohammad Javed Varidi, Int. J. Biological Macromolecule, 105, 27-35, (2017).
9. Amelia Avachate, KN Gujar, V.B. Kotwal, Sonali Patil, India J. Pharma. Science, 69(5), 676-679, (2007).
10. Nathiya S, Durga M, Devasena T, Int. J. Pharma., 12, 74-80, (2014).
11. Krystyna Golaszewska, Jadwiga Wierbowska, J. Elementology. 22(3), 1067-1080, (2017).