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Rich potential for fenugreek (*Trigonella foenum-graecum* L.) cultivation in Iran

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Abstract:

Fenugreek (*Trigonella foenum-graecum* L.) is a predominantly dryland crop belonging to the Fabaceae family and is closely related to alfalfa belonging to the same tribe. This annual forage legume species is an efficient biological agent for atmospheric nitrogen fixation through her microbial flora hosted in the root nodules. As such fenugreek is an excellent species for both long and short term crop rotation cycles in drier arid or semi-arid agro-climatic regions like that of Iran. Most importantly fenugreek is also a traditional medicinal herb due to presence of essential phytochemicals. Fenugreek seed is an excellent galactagogue; and has rich anti-diabetic and anti-hypercholesterolaemic properties as established in multiple experimental studies on various animal models and human subjects. The agro-climatic conditions of Iran has huge potential for generating new locally adopted, nutraceutically rich, high seed and forage yielding, disease resistant fenugreek cultivars that can cater to the global nutraceutical and pharmaceutical industries as a highly desired chemurgic crop. Since this is a low input crop marginal lands in Iran could be used for commercial fenugreek production and can contribute towards income generation for farmers with lower capacity for agricultural investments. The rising popularity for fenugreek products in the international markets could be an important opportunity for Iranian farmers for earning extra profit for a low input industrial crop.

Keywords: Fenugreek, *Trigonella foenum-graecum*, phytochemicals, medicinal, pharmaceutical, nutraceutical, functional food.

Abbreviations:

GE: Genotype X Environment Interaction

NTFC: Non-Traditional Forage Crop

TCM: Traditional Chinese Medicine

TFC: Traditional Forage Crop

TMP: Tibetan Medicinal Practice

USM: Unani System of Medicine