

Antihyperglycemic Activity, Antioxidant Potential and Phenolic Compounds of Fenugreek Seeds Improved by Sprouting

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ABSTRACT

Fenugreek seeds possessing multiple pharmacologic activities are commonly used in Indian folk medicine as hypoglycemic agent. In this study seeds of ten fenugreek genotypes were investigated for overall change in antihyperglycemic activity, antioxidant potential, total phenols, diosgenin, trigonelline and quercetin at different stages of germination. The water extracts from sprouts showed a time dependant increase in total phenolic content as well as antioxidant activity. The α amylase, α glucosidase and invertase inhibitory potential of germinating sprout extracts also improved significantly in a time dependant manner. In all the cases, the 4th day of germination was determined to be the optimal day for maximum increase in above mentioned selected parameters. In contrast to diosgenin and trigonelline, quercetin (flavonoid) concentration significantly increased gradually during germination. A direct correlation was found between increases in total phenol content and quercetin with hypoglycemic activity and antioxidant potential during sprouting. These findings suggest that the increased hypoglycemic effects and antioxidant potential of fenugreek sprouts is mediated via inhibition of α amylase, α glucosidase and invertase by phenolic compounds like quercetin in a dose dependant manner. The results are of utmost importance, that provides a strong *in vitro* evidence for confirmation of phenolic rich sprouts as excellent antidiabetic remedy than fenugreek seeds due to their much better potential to suppress hyperglycemia.