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**Glycemic regulatory properties of fenugreek (*Trigonellafoenum-graecum*) seed extracts used in Sri Lankan ethnomedicine**

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Diabetes is a chronic metabolic disease rapidly increasing worldwide including Sri Lanka. Fenugreek seed extracts had long been used as a folk remedy for management of diabetes. In Sri Lankan ethnomedicine and folklore, water extracts of germinated fenugreek seeds (WEGFS) and seed flour (WESF) and hot water seed extracts (HWSE) were used to treat diabetes. However, such claims have not been scientifically validated to date. The present study evaluated a range of glycemic regulatory properties of fenugreek seed extracts used in Sri Lankan ethnomedicine. Freeze dried WEGFS, WESF and HWSE were used in this study. Glycemic regulatory properties; anti-amylase, anti-glycation, glycation reversing, anti-acetyl and anti-butyrylcholinesterase activities were studied via *in vitro* (n=3 each) assays. Results revealed significant differences (p<0.05) among extracts for the glycemic regulatory properties tested. WEGFS exhibited significantly high (p<0.05) glycation reversing ability (IC<sub>50</sub>:131.19±2.47µg/ml), anti-acetyl (IC<sub>50</sub>:1194.38±48.61µg/ml) and anti-butyrylcholinesterase (IC<sub>50</sub>:245.15±1.30µg/ml) activities compared to the other extracts. In contrast, WESF demonstrated significantly high (p<0.05) anti-amylase activity (IC<sub>50</sub>:< 62.5µg/ml) compared to the other extracts. Interestingly, anti-amylase activity of WESF was significantly higher (p<0.05) compared to the reference drug acarbose (IC<sub>50</sub>:100.11±6.79µg/ml). Anti-glycation activity studied as a glycemic regulatory property was significantly high (p<0.05) in HWSE (IC<sub>50</sub>:81.62±1.59µg/ml). It is concluded that WEGFS, WESF and HWSE exert its glycemic regulatory properties via multiple mechanisms and those extracts showed varying degrees of potentials in mediating such properties. This study scientifically validated traditional claims of Sri Lankan ethnomedicine on the use of fenugreek seed extracts in treating diabetes.