**Development of an infusion bag with *Momordica charantia L.* (bitter gourd) with its retained nutraceutical properties**

A L C J Liyanage[1*], K K D S Ranaweera[1] and A Bamunuarachchi[2]

[1]*Department of Natural Resources, Faculty of Applied Sciences, Sabaragamuwa, University of Sri Lanka, Buttala*

[2]*Department of Food Science, Faculty of Applied Sciences, University of Sri Jayawardenepura, Nugegoda*

Recent research and development programmes explore hundreds of plant species for their potential blood glucose lowering properties which would help in curing Diabetes Mellitus. Among the species studied, *Momordica charantia L.* (bitter gourd) was found to possess hypoglycaemic properties. The hypoglycaemic properties of the fruit are mainly based on two compounds, namely polypeptide-p (p-insulin) and charantin.

A protocol was established to develop an infusion bag by using dehydrated bitter gourd powder possessing hypoglycaemic properties. Bitter gourd powder samples were prepared by subjecting mature bitter gourd fruits to hot air drying in a cabinet drier with applicable pretreatments of hot water blanching and sulphiting and drum drying in a double drum drier. The infusion was quantitatively analyzed for the hypoglycemic agent by UV spectrophotometry. Thin Layer Chromatography (TLC) technique was utilized for the qualitative analysis of the crystallized hypoglycemic agent.

Rehydration ratios ensuring retention of the outstanding quality during dehydration were between 6.6 and 8.8. The equilibrium moisture content (dry basis) obtained for the samples varied from 2.1 to 14.3 indicating appropriateness for storage at ambient temperatures. Maximum bitterness was developed by 20 min of time in all the 13 infusions tested for. Values of four samples out of 13 recorded close correspondence to that of a reference sample of standard insulin whose absorption peaks were recorded at 196 nm and 199 nm under UV spectrophotometry. Two distinct zones with the $R_f$ values of 0.12 and 0.20 were observed on the TLC plates which corresponded to crystallized hypoglycaemic agent and standard insulin respectively.

Although it could be concluded that the active principle could be retained by hot air drying, a clinical trial on the infusion formulas is needed to verify biological activity and work out the safe dosage per portion by evaluating the $LD_{50}$ value.

* Tel: 033 2231209