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Formulation Development and Analysis of Poly-herbal Antidiabetic Tablet Dosage Form

HHVKN de Silva[1,2], LCPT Liyanaarachchie[2#] and DBM Wickramaratne[2]

[1]Faculty of Health Sciences, CINEC Campus, Malabe, Sri Lanka
[2]Faculty of Allied Health Sciences, University of Peradeniya, Peradeniya, Sri Lanka

[#]chamilaliya@ahs.pdn.ac.lk

Abstract

Diabetes mellitus is a leading global health problem. Prevalence of diabetes mellitus in Sri Lanka was 11.3% in year 2021. As synthetic antidiabetics are associated with several unintended adverse effects on long term use, a convenient herbal formulation based on scientific evaluation could be beneficial to control diabetes with lesser adverse effects. The objective of this study was to formulate and analyse a tablet containing scientifically evaluated antidiabetic active plant constituents. Extracts of *Garcinia quaesita*, *Bunchosia glandulifera* and *Coleus hadiensis* which have been proven non-toxic and showed in vitro antidiabetic and antioxidant activities were used in this study. Four different tablet formulations were developed by slightly changing the percentage of added excipients. The tablets were then prepared by wet granulation followed by compression and stored at room temperature (28±5°C). Friability, hardness, weight variation, disintegration and dissolution tests were conducted as per the United States Pharmacopeia. Tablets of all four formulations passed the friability (1%), hardness (within 5-8 kg/cm^2 or force within 4-10 kg) and weight variation (within 5-10%) tests. Tablets of the three formulations totally disintegrated within 30 minutes at 37±2°C. However, the tablets of only two of the formulations passed the dissolution test, while the tablets of all four formulations were physically stable to-date without any change in colour, odour, shape, and texture. In conclusion, two tablet formulations that conform with all quality standards could be considered for further activity evaluations including preclinical and clinical trials.

Keywords: *Tablets, Antidiabetic, Garcinia quaesita, Bunchosia glandulifera, Coleus hadiensis*