

C
632
P.L.S.

**ORAL HYPOGLYCAEMIC ACTIVITY OF THE TRADITIONAL
NATIVE DRUG *VARIPRASADINADI* AND THE ANTIOXIDANT
ACTIVITY OF THE DRUG AND ITS CONSTITUENTS**

A PROJECT REPORT PRESENTED BY
PATHIRANAGE UPULPRIYA MUTHUMANI PERERA ✓

to the Board of Study in Plant Sciences of the
POSTGRADUATE INSTITUTE OF SCIENCE

in partial fulfillment of requirement
for the award of the degree of
MASTER OF SCIENCE IN PLANT SCIENCES

of the

UNIVERSITY OF PERADENIYA

SRI LANKA

2007

616284

**ORAL HYPOGLYCAEMIC ACTIVITY OF THE TRADITIONAL
NATIVE DRUG *VARIPRASADINADI* AND THE ANTIOXIDANT
ACTIVITY OF THE DRUG AND ITS CONSTITUENTS**

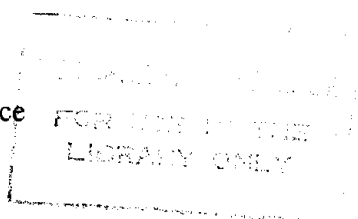
P. U. M. Perera

Postgraduate Institute of Science

University of Peradeniya

Peradeniya

Sri Lanka



Variprasadinadi is a herbal drug used in native medicine in Sri Lanka to treat diabetes mellitus by traditional physicians. *Variprasadinadi* consists of eight plants, *Strychnos potatorum* L.f., *Santalum album* L., *Cyperus rotundus* L., *Tinospora cordifolia* (Wild.) Hook. f. & Thoms., *Hemidesmus indicus* L., *Elettaria cardamomum* (L.) Maton var. major Thw., *Vetiveria zizanioides* (L.) Nash. and endemic species, *Coleus zeylanicus* (Benth.) Cramer.

The aim of this study was to scientifically investigate the effect of drug *variprasadinadi* on serum glucose level using normoglycaemic Wistar male rats and further to investigate free radical scavenging activity of the drug and its constituents of *variprasadinadi* using the DPPH method.

The aqueous decoction of *variprasadinadi* was freeze-dried and the resulting powder was used in the animal studies and antioxidant assay. The doses tested in the hypoglycaemic assay were 50, 75 and 150 mg/kg of body weight of freeze-dried powder of the *variprasadinadi*. Acute oral administration of the medium and high doses of *variprasadinadi* to rats has significantly ($p < 0.05$) reduced the fasting serum glucose level up to 4 h after the administration and in oral glucose tolerance test, significantly suppressed the rise of serum glucose following the glucose challenge ($p < 0.05$). Hypoglycaemic activity was not found to be dose dependant ($r^2 = 0.2$). Hypoglycaemic

effect was weaker than glibenclamide, the reference hypoglycaemic drug of sulphonylurea type.

The acute oral administration of high dose of the drug for the non-fasted rats did not significantly affect the serum glucose level in the random serum glucose test and the chronic oral administration of high dose of *variprasadinadi* over a period of 30 days did not significantly affect the fasting serum glucose level of rats.

The average radical scavenging activity of *variprasadinadi* with DPPH was moderate. The freeze-dried extracts of *Cyperus rotundus* and *Coleus zeylanicus* exhibited a significant antioxidant activity. Anti-hyperglycaemic activity of the drug may be associated in a part with its antioxidant activity.

It is concluded that the *variprasadinadi* is a safe, acute oral hypoglycaemic and anti-hyperglycaemic compound drug. Further the results of the present study support the claims made in the Sri Lankan traditional medicine on the therapeutic uses of the decoction *variprasadinadi* in the treatment of diabetes mellitus.