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A systematic screening of some medicinal plant extracts for *in vivo* hypoglycaemic activity: efficacy and dose response on glucose tolerance

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Over the past few decades the reputation of herbal extracts for the treatment of Diabetes Mellitus has increased globally due to the efficiency of plant derived drugs and recurrent drawbacks encountered in existing oral hypoglycaemic agents. The present study aims to evaluate the efficacy and dose response of aqueous extracts of *Syzygium caryophyllatum* (Heen-dan, Family: Myrtaceae), *Kokoona zeylanica* (Kokun, Family: Celastraceae) and *Spondias pinnata* (Emberella, Family: Anacardiaceae) on glucose tolerance in alloxan induced diabetic rats. The efficacy of selected extracts on glucose tolerance in healthy rats was proven previously.

The effect of different doses of aqueous bark extracts of *Syzygium caryophyllatum*, *Kokoona zeylanica* and *Spondias pinnata* on oral glucose tolerance test (OGTT) was evaluated. A single oral dose of extract at a range of 0.25 g kg⁻¹ - 1.25 g kg⁻¹ doses was administered orally to alloxan (150 mg kg⁻¹ bw, ip) induced Wistar rats (n=6). Glibenclamide (0.50 mg kg⁻¹) was used as the standard drug. The acute effect was evaluated over a four hour period using area under the OGTT curve. The results of test groups and Glibenclamide treated rats were compared with the healthy and diabetic control groups respectively. The results indicate that the hypoglycaemic effect was dose dependent. A statistically significant improvement in glucose tolerance with extracts at doses of 1.00 and 1.25 g kg⁻¹ was found in diabetic rats. There was no improvement in glucose tolerance at doses of 0.25, 0.50 and 0.75 g kg⁻¹ (p<0.05). The extract of *Syzygium caryophyllatum*, *Kokoona zeylanica*, *Spondias pinnata* at a dose of 1.00 g kg⁻¹ improves the glucose tolerance by 17%, 18% and 27% (p<0.05) respectively. The standard drug exhibited an improvement of 52% (p<0.05) in diabetic rats. The aqueous bark extracts of *Syzygium caryophyllatum*, *Kokoona zeylanica*, *Spondias pinnata* possess *in vivo* hypoglycaemic activity. The minimum effective dose on glucose tolerance for all extracts was found to be 1.00 g kg⁻¹ in alloxan induced diabetic rats.

Keywords: Diabetes Mellitus, Medicinal plant extracts