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Oral glucose tolerance of some medicinally important plants on glucose induced hyperglycemic rats

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Present investigation was initiated with the aim of identifying potential hypoglycemic plants for further studies. Initially freeze-dried water extracts of 5 medicinal plants (*Argyreia populifolia, Benincasa hispida, Morinda citrifolia, Languas galanga* and *Careya arborea*) were tested for their glucose tolerance using glucose induced hyperglycemic rats. Male Wistar rats (185±10g) were grouped into 7 (Group I-VII) each containing 6 rats and acclimatized them for laboratory conditions for 5 days and fasted for 18 hours before starting the experiment. Following doses given to each group. Group I: 2mL of distilled water (control), Group II: glibenclamide /oral dose of 10mg/Kg (positive control). Group III-VII: tested plant extracts oral dose of 300mg/Kg. After 30 minutes of dosing, rats of all groups were orally treated with 2g/Kg of glucose. Blood samples were collected from the tail vein just prior to glucose administration, at 30minutes and 90 minutes after glucose loading. Serum glucose levels were measured using a commercial diagnostic kit. Treatment data were compared with the control using one-way ANOVA and Tukey's comparison. At zero hours (after 30 minutes of extract administration) blood glucose level of Glibenclamide, *B. hispida* and *A. populifolia* were found to be not significantly different from the control. It was noted that while *L. galanga* extract has significantly ($p < 0.001$) reduced the blood glucose level, extracts of *M. citrifolia* and *C. arborea* significantly ($p < 0.001$) increased the blood glucose level. After 30 minutes of glucose loading, Glibenclamide and *L. galanga* significantly ($p<0.001$) reduced the blood glucose level. After 90 minutes of glucose loading, only Glibenclamide has significantly ($p<0.001$) reduced the blood glucose level. However, *L. galanga* has significantly ($p<0.001$) reduced the blood glucose level at 0 hours and at 30 minutes, and the maximum glucose tolerance for *L. galanga* was noted at 30 minutes after glucose loading. Therefore, *L. galanga* should be further tested for its potential hypoglycemic effect using a chemically induced diabetic animal model.

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