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A study on the hypoglycaemic effect of the aqueous extract of dried flowers of *Aegle marmelos* in diabetic Wistar rats

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Aegle marmelos (*beli*) has been used in ayurvedic medicine for treatment of Diabetes Mellitus (DM) in Asian countries. The present study was designed to evaluate the oral hypoglycaemic effect of the water extract of dried flowers of *Aegle marmelos* (WEAM) in diabetic male, Wistar rats. Diabetes was induced by administering a single dose (40 mg/kg) of alloxan monohydrate and rats with a serum glucose concentration of > 6.67 mmol /L were used. The diabetic rats were divided into 2 groups (Test and Control, n=6 per group) and fasted for 12 hrs. The Test and Control rats received 2.5 ml of a single dose (500 mg/kg, the optimal dose determined previously) of WEAM and distilled water respectively, orally by Sondi needles. This was followed by glucose (3 g/kg) ½ h later. Blood was drawn from the lateral tail vein and serum glucose was determined at 2 hrs by glucose oxidase reagent kits. To compare the activity of WEAM, diabetic rats were divided into 4 groups (n=6 in each); Group 1, 2, 3 and 4 which received a single dose of WEAM (500 mg/kg), metformin (15 mg/kg), glibenclamide (0.1 mg/kg) and distilled water respectively. Group 1, 2 and 3 continuously received the extracts and drugs for 42 days as a single dose. On day 42, fasting and post glucose challenge serum glucose and glycated haemoglobin (GlyHb) levels were measured. Statistical analysis was done in Microsoft Excel. The single dose of WEAM (500 mg/kg) showed a significant (p=0.02) oral hypoglycaemic activity in alloxan-induced diabetic rats. Serum glucose level of the test group was 13.67±1.5 mmol/L, while it was 17.20±2.1 mmol/L in the control group. When compared with oral hypoglycaemics, the percentage reduction of serum glucose level of the test group was 21% (14.43±1.4 mmol/L) compared to the control (18.27±0.3 mmol/L) group, while it was 26% (13.45±1.2 mmol/L) and 25% (13.61±1.7 mmol/L) for metformin and glibenclamide respectively. There was a significant reduction of the blood glucose (p=0.007) and GlyHb (p=0.005) levels after feeding for 6 weeks in WEAM and metformin groups. The water extract of the dried flowers of *Aegle marmelos* possess significant hypoglycaemic activity in diabetic rats.

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