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Attenuation of diabetic neuropathy in experimental diabetes in rats by methanolic extract of *Anogeissus acuminata* bark

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Aim: Diabetic Neuropathy (DN) is a debilitating condition associated with Diabetes Mellitus (DM) and develops even in patients taking antidiabetic treatment. *Anogeissus acuminata* is rich in phenolic compounds and may have potential beneficial effects in DM. Aim of our work was to assess the antidiabetic and neuroprotective effect of methanolic extract of *Anogeissus acuminata* bark (MEAA).

Methods: Rats with DM induced by streptozotocin were treated with MEAA for 8 weeks at doses 100 and 300 mg/kg, orally. Human NPH Insulin (4IU/kg, s.c.) was used as standard treatment. Plasma glucose levels and oxidative stress parameters were measured. Effect on DN was observed by assessment of thermal nociceptive function using hot plate method, chemical allodynia using formalin test, autonomic neuropathy using intestinal charcoal meal test and impairment of nerve conduction by sciatic nerve conduction velocity.

Results: MEAA produced significant ($p<0.05$) hypoglycemic and antioxidant effect. MEAA also caused significant increase in nociceptive response time (19.0±1.2, 20.0±1.4 for 100 mg/kg and 300 mg/kg vs. 11±1.2 S for control rats) in hot plate test. There was less chemical allodynia in MEAA rats as indicated by fewer limb flinches (25.1±1, 24.1±1.6 for 100 mg/kg, 300 mg/kg) vs. that in control rats (33.3±1.8). There was significant improvement in intestinal transit of charcoal meal (63.5±2.9, 65.2±3.1 vs. 52.5±2.3% for control) and sciatic nerve conduction velocity (40.6±1.0, 42.3±0.8 vs. 35.4±1.1 m/s). Thus, MEAA could attenuate development of DN and had hypoglycemic and potent antioxidant action.

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