The present study was performed to determine the optimal dose of alloxan monohydrate required to induce diabetes in male BALB/c mice and investigate in vivohypoglycemic activity of aqueous and ethylacetate leaf and stem bark extracts of Pappea capensis Lin alloxanized diabetic BALB/c mice. In addition, the proximate composition of P. capensispowder was investigated. The seven groups used in determining the optimal alloxan dose to induce diabetes included the normal mice intraperitoneally administered with a single dose of 0.1 mL physiological saline and doses of 50.0, 77.6, 120.4, 186.9, 290.0 and 480 mg/kg body weight in 0.1 mL of physiological saline. Blood glucose levels were determined at 0, 24 and 48 h using a glucometer. The hypoglycemic activity of aqueous and ethylacetate extracts was studied in the normal and diabetic mice orally administered with 0.1 mL physiological saline; diabetic mice orally administered with 0.075 mg glibenclamide, 1.25, 2.5 and 5 mg extract all in 0.1 mL physiological saline. Blood glucose levels were determined at 0, 2, 4, 6 and 24 h, respectively. The proximate composition of P. capensis powder was estimated using standard procedures. Results show that a single dose of alloxan at 186.9 mg/kg body weight administered to 3-5 weeks old mice induced stable diabetes in 48 h; oral administration of ethylacetate leaf and stem bark extracts at 100 and 200 mg/kg body weight induced hypoglycemic activity in a dose independent manner which was similar to that of glibenclamide at 3 mg/kg body weight from the second to the 24th h. Total ash and lipid were higher while the crude protein and carbohydrate were lower in leaves compared to the stem barks. In conclusion, P. capensis is a nutritious plant whose ethylacetate extracts possess in vivohypoglycemic activity.