SOME EFFECTS ASSOCIATED WITH THE USE OF THE BIOPREPARATION FROM Picralima nitida SEEDS EXTRACT AS ANTIDIABETIC AGENT

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SOME EFFECTS ASSOCIATED WITH THE USE OF THE BIOPREPARATION FROM Picralima nitida SEEDS EXTRACT AS ANTIDIABETIC AGENT

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The study was aimed to investigate some untoward effects that could be associated with the use of *P. nitida* as hypoglycemic agent using some biochemical and histological evidences.

The antioxidant property of the plant was determined by using 1, 1-diphenyl-2-picrylhydrazyl radical scavenging activity. Biochemical studies in plasma using determining the testes such as blood glucose, alanine and aspartate aminotransferases, gamma glutamyl transferase activities, electrolytes (sodium, potassium and bicarbonate, lipid peroxidation levels, haematological parameters (red blood cell and whole blood cell, platelets, and lymphocyte counts), blood glucose level, lipid profile, and also liver and kidney function tests were performed. Histopathological examinations of the liver, kidney and pancreas were done following the standard Heamatoxylin and Eosin staining method.

Methanol extract of the seeds has the highest antioxidant level (36.73%), indicating higher free radical scavenging activity; followed by aqueous extract (19.36%) and coconut water extract (4.09%). There was significant reduction (p<0.05) in blood glucose of all the treated rats at the end of the experiment (ranging from 55.59% to 41.66%). Significant increase (p<0.05) in body weights of the treated rats were also observed at the end of the treatment (ranging from 9.26% to 38.89%). There was a significant (p<0.05) increase in the hematological parameters in all the extract treated groups. There was also significant decrease (p<0.05) in the lipid profiles of the treated groups. Plasma studied enzymes activities decreased in all treated groups. Ionoregulatory disturbances observed included hyperkalemia and hypernatremia in all the treated groups but were reduced significantly (p<0.05) at the end of the treatment. Urea and bicarbonate concentrations and also of lipid peroxidation level decreased significantly in all the groups. The histopathological studies revealed that the extracts were unable to ameliorate some observable pathologic conditions associated with induced diabetic tissues. Although, diabetes mellitus have been reported to be associated with varied histological changes in different organs, in this study, histological examinations of the pancreas of the treated and untreated groups showed varying degree of degenerations but the extent of severity in the lesions were more pronounced in the extract treated groups. In this relation the obtained results of this study which revealed the hypoglycemic and antioxidant potentials of *Picralima nitida* seed extracts for the treatment of diabetes mellitus should be taken with caution in administering the *P. nitida* seed extract as an hypoglycemic agent.
**Key words:** *Picralima nitida*, diabetes mellitus, biochemical, histological evidences.

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http://dx.doi.org/10.2337/diacare.21.4.518


12. Iroegbu C. U., Nkere C. K. Evaluation of the antibacterial properties of Picralima nitida ste
J. Nat. Prodt-Lloydia
. 1990, V. 5, P. 975–977.

14. Magihu M., Mbuyi M., Ndele M. B. Use of Medicinal Plants among the Pygmes (Mbute) to treat Malaria in the area of Mambasa, Ituri, Zaire. The Biodiversity of African Plants, Wageningen, Netherland

J. Ethnopharmacol
http://dx.doi.org/10.1016/S0378-8741(96)01456-0

J. Ethnopharmacol
http://dx.doi.org/10.1016/0378-8741(92)90012-G

Planta Medica
. 1993,59(6), P. 565–566.
http://dx.doi.org/10.1055/s-2006-959764
   http://dx.doi.org/10.1016/S0031-9422(00)88556-8


   J. Ethnopharmacol
   http://dx.doi.org/10.1016/0378-8741(89)90032-9

   http://dx.doi.org/10.1016/S0014-2999(98)00232-5

22. Ezeamuzie I. C., Ojinnaka M. C., Uzogara E. O., Oji S. E. Antiinflammatory, antipyretic and antimalarial activities of a West African medicinal plant
   . 1994, 23(1), 85–90.

23. Levy A., Collin M. C. Anticholinesteric properties of pseudo Akamminigine alkaloid of Picralima nitida
   Apocynaceae.
   Ann. Pharmaceut. Franc


50. Pushparaj P., Tan C. H., Tan B. K. Effect of Averrhoa bilimbi leaf extract on blood glucose
and lipids in streptozotocin diabetic rats.

*J. Ethnopharmacol*
. 2000, V. 72, P. 69–76.
[http://dx.doi.org/10.1016/S0378-8741(00)00200-2](http://dx.doi.org/10.1016/S0378-8741(00)00200-2)


*Ind. J. Exp. Biol*
. 1995, V. 33, P. 798–800.

52. *Bopanna N. K., Kannan J., Gadgil S.* Antidiabetic and antihyperglycemic effects of neem seed kernel powder on alloxan diabetic rabbits.

*Ind. J. Pharmacol*

10.15407/biotech7.02.086