GSAR Journal of Agriculture and Veterinary Sciences
ISSN: 3048-9075 (Online)
Abbreviated key title: Glob.J. Agri.Vet.Sci.
Frequency: Monthly
Published By GSAR Publishers
Journal Homepage Link- https://gsarpublishers.com/journal-gjavs-home/

The solvent extract of *Picralima nitida* seeds exerts ameliorative effects in alloxan-induced diabetes in wistar rats

By

Baba-Onoja Oluwatosin Moradeke[1] Abatan Mathew Oluwole[2], Asala Mercy Titilayo[3], Baba-Onoja Eyiojo Baba Toluwa[4]

[1]Department of Animal Production and Health, Federal University, Wukari, Nigeria
[2]Department of Veterinary Pharmacology and toxicology, University of Ibadan, Nigeria.
[3]Department of Medical Biotechnology, National Biotechnology Development Agency, Federal Capital territory, Abuja, Nigeria.
[4]Department of Animal Production and Health, Federal University Wukari, Taraba State Nigeria

Article History

Received: 05/05/2025
Accepted: 15/05/2025
Published: 17/05/2025

Vol – 2 Issue – 5

PP: -60-67

Abstract

The result shows that crude seed extract of Picralima. nitida contains Alkaloid, Saponins, Flavonoid and cardiac glycosides. At three- and four-hours post administration of chloroform extract, there was a decrease in blood glucose levels compared to the positive and standard controls. At four hours post administration of diethyl extract of PN, there was no significant difference in the blood glucose level when compared to the positive control. there was a decrease in the blood glucose levels in the positive control groups at two, three- and four-hours post administration of ethyl acetate extract, however, there was no difference (P>0.05) in the standard controls at one, two, three- and four-hours post administration. At three- and four-hours post administration, the blood glucose was low when compared to the positive control and was still high when compared to negative control. However, there was no significant difference when compared to the standard control. At one to three hours post administration of methanol extract of PN, the blood glucose levels were high when compared to the negative control. However, there was no significant difference when compared to the positive and standard controls. There was a significant (P<0.05) increase in the High-Density Lipoprotein (HDL), value and a significant decrease in the Low-Density Lipoprotein (LDL) in alloxan induced rat on chloroform extract of PN when compared to the positive control. There was a (P<0.05) increase in the High-Density Lipoprotein (HDL) value and a significant decrease in the Low-Density Lipoprotein (LDL) in alloxan treated rats on ethyl acetate extract compared to the positive control. However, there was no (P>0.05) difference in total protein, total cholesterol and triglyceride values when compared to the Control groups (Table 3). There was a significant (P<0.05) increase in the total cholesterol and triglyceride in alloxan treated rats administered diethyl extract compared to the negative control. However, there was a significant decrease in cholesterol values when compared to the positive and standard controls. There was a significant increase in HDL value and decrease in LDL value when compared to the positive control. There was no difference (P>0.05) in the Total Protein value when compared to the control groups (Table 3). There was a significant increase in the total cholesterol values of alloxan treated rats on acetate extract when compared to the negative and standard controls. There was a decrease (P<0.05) in the Triglyceride value when compared to both positive and standard controls. There was a significant increase in the HDL values and decrease in the LDL values when compared to the positive control group. There was a significant decrease in the Total cholesterol, Triglyceride and LDL in rats administerd methanolic extract when compared to the positive control. There was also a significant decrease in the Triglyceride value when compared to the standard control

Introduction

Diabetes mellitus (DM) is an endocrine and metabolic disorder caused by insufficient levels of insulin, the principal hormone that regulates the uptake of glucose from the blood into most cells primarily muscle and fat cells. (Adewole and Ojewole, 2009). Consequently, DM is characterized by hyperinsulinemia, hyperglycaemia, and dyslipidaemia. (American, Diabetes Association (2009). Other symptoms of DM include polydipsia, polyuria, polyphagia, weight loss, body pain, fatigue, restlessness, irritability, recurring

*Corresponding Author: **Baba-Onoja Oluwatosin Moradeke.**
© Copyright 2025 GSAR Publishers All Rights Reserved
This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

infections, numbness of feet, dry mouth, pruritus, erectile dysfunction, and decreased vision (Ramachandran, 2014).

The orthodox approach of managing DM has come with its attendant challenges. While the therapeutic goal is to reduce blood sugar levels without causing hypoglycaemia, the drugs used pose significant health risks. (Chaudhury, et al, 2017) Available oral hypoglycaemic drugs have many side effects such as nausea and vomiting, cholestatic jaundice, agranulocytosis, aplastic and haemolytic anaemias, generalized hypersensitivity reactions, dermatological reaction, lactic acidosis, and cardiovascular complications. Additionally, these drugs are also not able to rejuvenate the dying pancreatic beta cells which is the fundamental cause of DM (Kavishankar et al 2011) (Chaudhury, et al, 2017) (Panicker, et al, 2012)

Consequent upon these challenges, research efforts are currently intensified towards providing a traditional approach in the management of DM. This unorthodox approach which engages the use of natural products is expected to be of low cost, safer than conventional hypoglycaemic agents, and provide the much-needed efficacy (Patel et al, 2012). The use of herbal medicines for the treatment of DM has gained global prominence. The World Health Organization also recommended and encouraged this practice especially in countries where access to the conventional treatment of diabetes is not adequate (Kavishankar et al 2011). Empirical data has confirmed the hypoglycaemic activity of a number of indigenous African medicinal plants. (Kavishankar et al 2011). Currently, diabetes is controlled by diet, exercise, insulin replacement therapy, and by the use of hypoglycaemic drugs and herbs (Majekodunmi et al et al., 2011).

Plant constituents such as polysaccharides, peptides, alkaloids, glycopeptides, triterpenoids, amino acids, steroids, xanthone, flavonoids, lipids, phenolics, coumarins, iridoids, alkyl disulphides, inorganic ions and guanidines are reported to have antidiabetic activities (Grover et al., 2002).*Picralima nitida* has widely varied applications in Nigeria folk medicine. Many herbalists have claimed to use the leaves, seed or stembark as treatment for various fevers, hypertension, jaundice, gastro-intestinal disorders and for malaria (Dalziel, 1961; Iwu, 1993). The seed, stem and roots have been reported to be effective as a cough suppressant anodyne, as well as an aphrodisiac and hypoglycaemic agent in treatment of diabetes (Ayensu, 1978; Oliver, 1960). Also, the hypoglycemic effects of the bark and seed extracts have been documented (NNMDA, 2008). Several researchers (Fakeye et al., 2000) have reported the medicinal potentials of this plant.

This study is aimed at investigating the ameliorative effects of the solvent extracts of the seeds of the Akuamma plant (*Picralima nitida)* on alloxan-induced diabetes in wistar rats. The outcome of this study could culminate in the development of herbal drugs against DM

Materials and Methods

Collection and Preparation of Plant Extracts: Seeds of *Picralima nitida* were collected from a Molete Bode, Ibadan and authenticated in Botany department, University of Ibadan, Nigeria. The seeds were air dried and pulverized. Thereafter, solvent to solvent extraction of homogenized dried matter of the seed was carried out using chloroform, ethyl acetate, diethyl ether, and methanol solvents respectively. The different solvent extracts were thereafter concentrated using rotary evaporator.

Phytochemical Screening of Plant Extract: A small portion of the dry extract was used for the phytochemical tests for compounds which include alkaloids, flavonoids, tannins, saponins, glycosides, phenol and terpenoids in accordance with the methods of Evans (2006). Phytochemical screening was done by physical examination of intensity of the colour of reaction mixture compared with blanks (i.e., without of plant samples) and highest possible intensity of colour type.

Animal Trial

Pilot Toxicity Study: The following graded doses of the plant extracts were administered: 3000mg/kg, 2000mg/kg and 1000mg/kg body weights. The animals were observed for changes in behaviour and mortalities. This experiment was aimed at calculating the lethal dose 50 (LD50). The limit test for determination of mean Lethal Dose (LD50) was conducted on five rats for 14days based on OECD guidelines for the testing of chemicals, no mortality was recorded even at 3000mg/kg dosage throughout the duration of the experiment.

Experimental Animals and Procedure: A total of 70 Adult albino rats (average weight 150g) of both sexes were acclimatized for two weeks at room temperature. in the animal house of Department of Veterinary Biochemistry and Physiology University of Ibadan. After acclimatisation, 60 rats were induced with diabetes using alloxan monohydrate at a dosage of 100mg/kg. Before this was done, their fasting blood glucose levels was taken using Accucheck glucometer. After 72 hours, animals with blood glucose levels of 200mg/dl and above were said to be diabetic and regrouped in six groups. The remaining ten rats were used as normal control, making a total of seven groups in all. The details of the groups and what was administered are as follows:

Group 1: (negative control): received neither plant extract nor alloxan.

Group 2: (positive control): Animals in this group were induced with diabetes using alloxan but were not treated.

Group 3: (standard control group): Diabetic rats in this group were treated with a known antidiabetic drug, Glibenclamide (5mg/kg).

Group 4: Diabetic rats were treated with 750mg/kg chloroform extract of the plant.

Group 5: Diabetic rats were treated with diethyl ether extract 750mg/kg of the plant.

Group 6: Diabetic rats were treated with ethyl acetate extract 750mg/kg

Group 7: Diabetic rats were treated with methanol extract 750mg/kg of the plant.

*Corresponding Author: **Baba-Onoja Oluwatosin Moradeke.**
© Copyright 2025 GSAR Publishers All Rights Reserved

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Estimation of Blood Glucose: The blood of animals was collected by tail bleeding and their blood glucose estimated by an automatic Accucheck glucometer at 1hour, 2 hours, 3 hours and 4 hours after the administration of the different doses of the extracts and standard drug. Initial blood glucose level was compared with change in glucose level.

Collection of Blood: After this, blood was collected from all the animals from the retro orbital plexus and labelled accordingly. A set of blood samples was collected into heparinised tubes for subsequent haematological analysis. Another set of samples were collected into plain bottles. Blood in the plain bottles was centrifuged obtain serum for biochemical analysis. Determination of packed cell volume was done by microhaematocrit method, haemoglobin Concentration: was determined by conventional method. Erythrocyte Count was done using the improved Neubauer counting chamber as described by Cole (1986). The total leucocytes counts were determined as described by Cole (1986). The differential white blood **cell count** was identified under oil immersion microscope and counted per ten fields.

Serum total protein was estimated using the test based on Biuret reaction (Gornall, 1994). Total Cholesterol was measured using the enzymatic (cholesterol oxidase) method.

The triglycerides and LDL -cholesterol fractions were determined using the enzymatic (colorimetric) method (Greiling and Gressner, 1995).

Results

Phytochemical Analysis: Table 1 shows the result of the phytochemical analysis of the crude seed extract of *Picralima. nitida.* The result shows that crude seed extract of *Picralima. nitida* contains Alkaloid, Saponins, Flavonoid and cardiac glycosides.

Effect of Chloroform extracts of *Picralim nitida* seed on the Blood Glucose Levels of Alloxan Treated Rats: At one and two hours post- administration of the chloroform extracts of PN, there was an increase in the blood glucose levels when compared to the negative control groups but were lower in comparison to the positive and standard control groups while at three hours and four hours post administration of the chloroform extract, there was a decrease in blood glucose levels compared to the positive and standard controls but not significantly different in the negative control groups.

At one hour after the administration of the chloroform extract, there was a significant ($P<0.05$) increase in the blood glucose when compared to the control group. However, the blood glucose levels were significantly lower ($P<0.05$) when compared to the alloxan treated groups and group treated with the standard drug after alloxan.

At two hours after the administration of the extract, the blood glucose levels for *Picralima. nitida* treated group was still high when compared to the negative control but a significant decrease when compared to the positive and standard controls. At three hours post administration, the blood glucose was lower when compared to the positive and standard control, however, there was no significant difference when compared to the negative control.

At four hours post administration, there was no significant difference in the blood glucose level when compared to the negative control. However, there was a significant decrease when compared to the positive and standard control (Table 2).

Effect of Diethyl Ether Extract of *Picralima nitida* Seed on the Blood Glucose Levels of Alloxan Treated Rats: At one, two and three hours post administration of diethylether extracts of PN, there was an increase in the blood glucose levels of the PN treated group compared to the control groups, however, at four hours post administration , there was no significant difference in the blood glucose levels compared to the positive control but it significantly increased in the negative and standard control groups

At one hour after the administration of the diethyl ether extract, there was a significant ($P<0.05$) increase in the blood glucose when compared to control groups. At two hours after the administration, the blood glucose level for *Picralima. nitida* treated group was still high when compared to the control groups. At three hours post administration, the blood glucose level for *Picralima. nitida* treated group was still also high when compared to the control groups.

At four hours post administration, there was no significant difference in the blood glucose level when compared to the positive control. However, there was a significant increase when compared to the negative and standard controls (Table 2).

Effect of Ethyl Acetate Extract of *P. nitida* Seed on the Blood Glucose Levels of Alloxan Treated Rats: At one ,two, three and four hours post administration of ethylacetate extract of PN, the blood glucose levels increased in the PN treated groups in comparism to the negative control groups , while there was a decrease in the blood glucose levels in the positive control groups at two, three and four hours post administration, however, there was no significant difference in the standard controls at one, two, three and four hours post administration.

At one hour after the administration of the ethyl acetate extract, there was a significant ($P<0.05$) increase in the blood glucose when compared to the control group. However, there was no significant difference in the blood glucose levels when compared to the alloxan treated group and group treated with the standard drug after alloxan.

At two hours after the administration, the blood glucose level for Picralima nitida was still high when compared to the negative control and low when compared to the positive control. However, there was no significant difference when compared to standard controls.

At three hours post administration, the blood glucose was low when compared to the positive control and was still high when compared to negative control. However, there was no significant difference when compared to the standard control.

*Corresponding Author: **Baba-Onoja Oluwatosin Moradeke.**
© Copyright 2025 GSAR Publishers All Rights Reserved

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

At four hours post administration, the blood glucose level was low when compared to the positive control and was high when compared to negative control. However, there was no significant difference when compared to the standard control (Table 2).

Effect of Methanol Extract of *P. nitida* seed on the Blood Glucose Levels of Alloxan Treated Rats : At one and two hours post administration of Methanol extracts, the blood glucose levels of the PN treated groups increased compared to the negative control while there was no significant difference in the positive and standard controls, however at three and four hours post administration , there was no significant difference in the PN-treated groups compared to the standard control, negative control and standard control and groups respectively. However, there is an increase in the blood glucose levels compared to the negative control at three hours post administration while a decrease was observed in the positive control groups at three- and four-hours post administration.

At one hour after the administration of the methanol extract, the blood glucose was still significantly ($P<0.05$) high when compared to negative control. However, there was no significant difference in the blood glucose when compared to the positive and standard control.

At two hours post administration, the blood glucose levels was high when compared to the negative control. However, there was no significant difference when compared to the positive and standard controls. At three hours post administration, the blood glucose was high when compared to the negative control and low when compared to the positive control. However, there was no significant difference when compared to the standard control. At four hours post administration, there was no significant difference in the blood glucose level when compared to the negative and standard controls. However, it was low when compared to the positive control (Table 2).

Lipid Profile

Effect of Chloroform Extract of *Picralima nitida* Seed on the Lipid Profile of Alloxan Treated Rats: There was a significant ($P<0.05$) increase in the High-Density Lipoprotein (HDL) value and a significant decrease in the Low-Density Lipoprotein (LDL) value when compared to the positive control. However, there was no significant ($P>0.05$) difference in total protein, total cholesterol and triglyceride values when compared to the Control groups (Table 3).

Effect of Diethyl Ether Extract of *Picralima nitida* Seed on the Lipid Profile of Alloxan Treated Rats: There was a significant ($P<0.05$) increase in the total cholesterol and triglyceride values when compared to the negative control. However, there was a significant decrease in cholesterol values when compared to the positive and standard controls. There was a significant increase in HDL value and decrease in LDL value when compared to the positive control. There was no significant ($P>0.05$) difference in the Total Protein value when compared to the control groups (Table 3).

Effect of Ethyl Acetate Extract of *Picralima nitida* Seed on the Lipid Profile of Alloxan Treated Rats: There was a significant increase in the total cholesterol values when compared to the negative and standard controls. There was a significant decrease in the Triglyceride value when compared to both positive and standard controls. There was a significant increase in the HDL values and decrease in the LDL values when compared to the positive control group.

Effect of Methanolic Extract of *Picralima nitida* Seed on the Lipid Profile of alloxan Treated Rats: There was a significant decrease in the Total cholesterol, Triglyceride and LDL values when compared to the positive control. There was also a significant decrease in the Triglyceride value when compared to the standard control (Table 3).

Haematology

Effect of Chloroform Extract of *Picralima nitida* Seed on the Haematology of Alloxan Treated Rats: There was no significant ($P>0.05$) difference in the haemoglobin (Hb), packed cell volume (PCV), mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH), mean corpuscular volume concentration (MCVC) and red blood cell (RBC) count values when compared with the control groups. However, there was a significant ($P<0.05$) increase the white blood cell and platelet count when compared to the standard control (Table 4).

Effect of Diethyl Ether Extract of *Picralima nitida* Seed on the Haematology of Alloxan Treated Rats: There was no significant ($P>0.05$) difference in the haemoglobin (Hb),packed cell volume (PCV), MCV, MCH, MCVC and red blood cell (RBC) count values when compared with the control groups. However, there was a significant ($P<0.05$) increase the white blood cell count and platelet when compared to the negative and standard controls (Table 4).

For the chloroform and Diethylether extract, there was no significant difference in Haemoglobin (Hb), packed cell volume (PCV), mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH), mean corpuscular volume concentration (MCVC) values when compared with the control groups. However, there was a significant increase in white blood cells and platelet count for both groups

Effect of Ethyl Acetate Extract of *Picralima nitida* Seed on the Haematology of Alloxan Treated Rats: There was no significant ($P>0.05$) difference in the haemoglobin (Hb), packed cell volume (PCV), MCV, MCH, MCVC and red blood cell (RBC) count values when compared with the control groups. However, there was a significant ($P<0.05$) increase the white blood cell and significant decrease in platelet count when compared to the standard control. There was also a significant increase and a significant decrease when compared to the negative control (Table 4).

Effect of Methanol Extract of *P. Nitida* seed on the Haematology of Alloxan Treated Rats : There was no significant ($P>0.05$) difference in the haemoglobin (Hb), packed cell volume (PCV), MCV, MCH, MCVC and red blood cell (RBC) count values when compared with the

*Corresponding Author: **Baba-Onoja Oluwatosin Moradeke.**
© Copyright 2025 GSAR Publishers All Rights Reserved

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

control groups. However, there was a significant (P<0.05) increase the white blood cell count and significant decrease in platelet count when compared to the standard control. There was also a significant increase and a significant decrease when compared to the negative control (Table 4).

For the ethylacetate and methanol extract, there was no significant difference in Hb, PCV, MCH, MCVC, RBC values when compared with the control groups, however, there was a significant increase in white blood cell count and a decrease (p<0.05) in platelet count when compared to the negative and standard groups

Discussion

Diabetes mellitus is one of the most common chronic diseases and it is associated with hyperglycemia, hyperlipidemia, increased oxidative damage, glucosuria and other complications such as obesity and hypertension. Several species of plants have been described to have hypoglycaemic activity. These herbal medicines have been recommended for the treatment of diabetes and are considered less toxic with fewer side effects than synthetic ones (De Sousa et al., 2004).

The detection of active principles in medicinal plants plays a stragetic role in the phytochemical investigation of crude plant extract and it is very important with regards to their potential pharmacological effects. Saponins was detected in the crude extract of *Picralima nitida* seed. Saponin has been shown to have antidiabetic effect (Zhong-Hua et al., 2008). Alkaloid was detected in the extract. The presence of alkaloid in plants is reported to improve muscle glycogen content in diabetic rats (Bhavna et al., 2010). This explains the hypoglycaemic effect of the seed extract as it also contains alkaloid. Flavonoid and tannins are phelonic compounds that act as primary antioxidant or free radical scavengers (Polterait, 1997). Since diabetes and oxidative stress are interrelated, the presence of flavonoid and tannins in the crude extract of *Picralima nitida* seed could be factors that enhanced its antioxidant and hypoglycaemic effects.

Result obtained from the blood glucose levels of rats administered with alloxan alone show that their blood glucose remained very high confirming the destruction of the beta cells and non-stimulation of insulin secretion. The use of glibenclamide shows that there was a gradual lowering of the blood glucose throughout the experiment. This is suggestive of the effectiveness of the standard drug in treating diabetes.

Result with all the solvent extract of *Picralia nitida* seed showed that the seed extract caused a lowering of the blood glucose. However, chloroform solvent extract gave the highest hypoglycaemic effect. The pattern of hypoglycaemic effect showed that the chloroform, ethyl acetate and methanol extract had a lower hypoglycaemic activity than glibenclamide and diethyl ether extract had a higher hypoglcaemic activity than glibenclamide. This suggests that *Picralima nitida* seed causes hypoglycaemia and may be used for this action in diabetic patients.

The seed extracts caused a reduction in the triglycerides, total cholesterol, low density lipoprotein (LDL)and a significant increase in the high-density lipoprotein (HDL) in alloxan induced rats. This was similar to the rats administered with alloxan and treated with glibenclamide. This suggests the ability of the seed extract to reduce atherosclerosis, a complication of diabetes.

There were no differencein the haemoglobin, red blood cell count, packed cell volume, MCV, MCH and MCHC values in all the groups. This shows that *Picralima ntida* seed has no effect on any of this parameter in alloxan treated rats. Increased white blood cell (WBC) count in the groups treated with all the solvent extracts This report is similar to Azeez et al., 2010, as they also reported increase in the WBC count in *Cnidoscolus aconitifolius* when administered to diabetic rats. Neutrophils along with monocytes provide the first line defence against invading micro-organisms or toxic substances (Azeez et al.,2011). The increase in the total WBC count may therefore assist in reducing secondary infection associated with patient with diabetes.

TABLE 1: Phytochemical analysis of crude seed extract of *Picralima nitida*

Phytochemical	
Saponins	±
Terpenoid	_
Flavonoid	+
Tannins	+
Alkaloid	++
Cardiac glycosides	+
Anthraquinone	_

+ present
_ absent
± trace
++ highly present

Table 2: Blood Glucose Levels of Rats Administered with Chloroform, Diethyl Ether, Ethyl acetate and Methanol Extracts of *P. nitida* Seed after Alloxan Treatment and Control Groups.

TREATMENT GROUPS	TIME AFTER ADMINISTRATION OF EXTRACT /DRUG				
	0HR	1Hour	2Hours	3Hour	**4Hours**
Non-diabetic untreated (negative control)	76±8.49	87± 7.07[a]	67± 3.53 .12	75.5±2 2.12	73.5±
Alloxan treated (positive control)	251±9.90	251±9.9	277.5±1	308.5±	272 ±

*Corresponding Author: **Baba-Onoja Oluwatosin Moradeke.**
© Copyright 2025 GSAR Publishers All Rights Reserved
This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

		0 [a]	6.97 [a]		16.97[a]	45.25[ab]	
Alloxan+ 5mg/kg Glibenclamide (standard control)	289±11.31	220.5±9.90[a]	09[ab]	166±19.	19.09 [ab]	163.3± 5.25 [ab]	147.5±4
Alloxan + 750mg/kg Chloroform extract	358±3.54	170.5±10.6 [ac]	1 [abc]	155±0.7	26	83±16. 7	81±15.5
Alloxan + 750mg/kg diethyl ether extract	366.5±59.40[ab c]	352±67.88[abc]	7.48[abc]	342.5±3	14.85[abc]	323.5± 85[ac]	273±14.
Alloxan+ 750mg/kg ethyl acetate extract	391.67± 14.14	225.5±9.91 [a]	41 [ab]	204.5±1.	6.97 [ab]	182±1 3 [ab]	136±2.8
Alloxan + 750mg/kg Methanol extract	318.5±53.63	252±26.87 [a]	60 [a]	163±39.	23.23	118.5± [ab]	98±6.77

Values are expressed as mean± standard deviation (n=4 rats/group)

[a] P<0.05 denotes value significantly different when compared to the negative control group (non-diabetic untreated)
[b] P<0.05 denotes value significantly different when compared to the positive control group (diabetic untreated group)
[c] P<0.05 denotes value significantly different when compared to the standard control group (diabetic, treated with glibenclamide 5mg/kg

Table 3: Lipid profile of Rats Administered with Chloroform, Diethyl Ether, Ethyl Acetate and Methanol Extracts of *Picralima Nitida* Seed after Alloxan Treatment and Control Groups.

TREATMENT GROUPS	Total protein (g/dl)	Total cholesterol (mg/dl)	Triglyceride (mgldl)	High density lipoprotein (HDL mg/dl)	Low density lipoprotein (LDL mg/dl)
Untreated (negative) control	7.55 ±0.07	62.67±1.41	82±11.31	51±1.41	14±0.66
Alloxan treated (positive) control	8.15±0.07	97.5±9.90[a]	268.5 ±11.31[ac]	22±2.83[a]	46 ±5.66[a]
Alloxan + 5mg/kg Glibenclamide (standard control)	10.45±4.6	68±4.93[b]	187±27.58[ab]	49± 1.41[b]	18±1.41
Alloxan + 750mg/kg Chloroform extract	8.1±0.14	84±2.83	98±23.36	48±5.66[b]	23±3.54[b]
Alloxan + 750mg/kg diethyl ether extract	9.5±1.13	85.5±6.63[a]	166.5±18.39[abc]	44±5.66[b]	22±9.91[b]
Alloxan + 750mg/kg ethyl acetate extract	11.65±0.07	92±3.54[ac]	114.5±2.83[bc]	56±7.07[b]	28±8.49[b]
Alloxan + 750mg/kg Methanol extract	10.55±0.35	68±8.49[b]	73±1.41[bc]	39.5±6.36[b]	22.5±6.67[b]

Values are expressed as mean±standard deviation (n=4 rats/group)
[a] P<0.05 denotes value significantly different when compared to the negative control group (received neither alloxan nor the seed extract)
[b] P<0.05 denotes value significantly different when compared to the positive control group (diabetic untreated group)
[c] P<0.05 denotes value significantly different when compared to the standard control group (diabetic, treated with glibenclamide 5mg/kg)

Table 4: Haematology of Rats Administered with Chloroform, Diethyl ether, Ethyl acetate and Methanol Extracts of *Picralima nitida* seed after Alloxan Treatment and Control Groups.

Parameters	Untreated control (negative)	Alloxan treated control (positive)	Alloxan + 5mg/kg Glibenclamide	Alloxan + 750mg/kg Chloroform extract	Alloxan + 750mg/kg Diethyl ether extract	Alloxan + 750mg/kg Ethyl acetate extract	Alloxan+ 750mg/kg Methanol extract

*Corresponding Author: **Baba-Onoja Oluwatosin Moradeke.**
© Copyright 2025 GSAR Publishers All Rights Reserved
This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Hb (g/dl)	13.04± 1.19	13.95± 0.35	14.85± 1.34	14.05± 0.92	14.13± 0.9	14.7± 0.38	12.55± 0.49
PCV (%)	40.67±2.08	43± 2.82	42± 1.41	39± 1.41	41.5± 2.12	41± 5.52	42± 1.41
RBC x 10^6/µL	7.48± 0.14	7.7± 0.57	7.3 ±0.14	7.55± 0.35	7.05± 0.71	7.5± 0.07	7.1± 0.35
MCV fL	53± 2.08	55± 0.71	57± 1.41	53.5± 0.71	55± 0.82	57.5± 2.83	52± 1.41
MCH pg	17.5± 0.71	18± 0.71	20± 1.41	17± 1.41	19± 1.41	19.5± 0.71	18± 0.41
MCHC g/dL	32.5± 0.71	33± 0.71	35.5± 2.12	32.5± 0.71	34± 1.41	33.5± 0.71	33± 0.71
WBC x 10^3 / µL	8.84± 0.59	11.3± 0.34^{c}	13.4± 0.35	15.2± 0.99^{abc}	13.1± 0.21^{ab}	11.3± 0.35^{ac}	10.3± 0.57^{ac}
Platelets x10^3/µL	676.5± 29.7	639.5± 37.48^{c}	760± 37.48^{b}	1035± 16.26^{abc}	948± 70.71^{ab}	850.5± 164.76^{abc}	956± 164.76^{abc}

Values are expressed as mean±standard deviation (n=4 rats/group)

a P<0.05 denotes value significantly different when compared to the negative control group (received neither alloxan nor the seed extract)

b P<0.05 denotes value significantly different when compared to the positive control group (diabetic untreated group)

c P<0.05 denotes value significantly different when compared to the standard control group (diabetic, treated with glibenclamide 5mg/kg)

References

1. Adewole, S.O., Ojewole, J.A.O. (2009). Protective effects Of Annona muricata linn.(Annonaceae) leaf aqueous extract on serum lipid profiles and oxidative stress in hepatocytes of Streptozotocin-treated diabetic rats. Afr. J. Trad. Cam., 6(1), 30 – 41.
2. American Diabetes Association classification of diabetes mellitus with 1985 WHO classification. Lancet 1998; 352: 1012–1015.
3. Ayensu ES (1978). Medical Plants in West Africa. Reference Publications Inc. Algonac, Michigan. p. 330
4. Azeez O, Oyagbemi A A, Oyeyemi MO, Odetola AA, Ameliorative effects of Cnidoscolus aconitifolius on alloxan toxicity in wistar rats African Health Sciences 2010; 10(3): 283 – 291
5. Coles, E.H (1986). Veterinary Clinical Pathology. W.B. Saunders Co. Philadephia. pp5-87 Gornall, 1994).
6. De Sousa E, Zanatta L, Seifriz I, Creczynski-Pasa TB, Pizzolatti MG, Sypoganicz B, Silva FRMB. Hypoglycemic effect and antioxidant potential of kaempferol-3,7-0-dirhamnosi
7. Evans JM, Ogston SA, Emslie-Smith A, Morris AD. Risk of mortality and adverse cardiovascular outcomes in Type 2 diabetes: a comparison of patients treated with sulfonylureas and metformin. Diabetologia 49(5), 930–936 (2006).
8. Fakeye TO, Itiola OA, Odelola HA. Evaluation of the antimicrobial property of the stem bark of Picralima nitida (Apocynaceae). Phytother Res 2000; 14(5):368-370
9. Greiling H, Gressner A.M. eds. (1995). Lehrbuch der Klinishen chemie und pathobiochemie, 3rd edition Stuttgart/ New York: Schauttauer.
10. Grover JK, Yadav S, Vats V. Medicinal plants of India with anti-diabetic potential. Journal of Ethnopharmacology 2002; 81:81-100.
11. Iwu, M.M. (1993). Handbook of African Medicinal Plants. Crc Press, London, Pp 161–162.
12. Kavishankar GB, Lakshmidevi N, Mahadeva Murthy S, Prakash HS, Niranjana SR.Diabetes and medicinal plants-A review. International Journal of Pharmaceutical &Biomedical Sciences 2011; 2(3), 65-80.
13. Majekodunmi S, Ademola A Oyagbemi, Solomon Umukoro, Oluwatoyin A Evaluation of the anti-diabetic properties of Mucuna pruriens seed extract 2011
14. Oliver B (1960). Encyclopedia of Medicinal Plants. College of Arts, Science and Tech. Ibadan.
15. (NNMDA, 2008).
16. Panicker, G.K., Karnad, D.R., Salvi, V., Kothari, S (2012). Cardiovascular risk of oral antidiabetic drugs: current evidence and regulatory requirements for new drugs. J Assoc Physicians India.: 60:56-61

*Corresponding Author: **Baba-Onoja Oluwatosin Moradeke.**

© Copyright 2025 GSAR Publishers All Rights Reserved

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.