

## Lipids 2020: In vivo anti-hyperlipidemic activity of Tetracarpidium conophorum (African walnut) oil - Oriakhi Kelly- University of Benin, Nigeria

Oriakhi Kelly

University of Benin, Nigeria

### Extended Abstract

Hyperlipidemia, a syndrome of lipid metabolism considered by elevated levels of lipids circulating in the blood, has now become a global concern. It is considered one of the five leading causes of death in the world. Its prevalence is greatly influenced by adaptation to a sedentary lifestyle and an increase in the consumption of a high-fat diet. Hyperlipidemia is strongly linked to the development of cardiovascular events and metabolic syndrome diseases. Thus, regulating blood lipids levels is vital in the prevention and treatment of hyperlipidemia and its related diseases. An entire of 35 rats were used in this study. The animals were randomly assigned into seven groups (five rats per group). Group I (control group) was fed with normal diet (ND) only, group II, V, VI, and VII were fed with high cholesterol diet, which contains 1% cholesterol and 0.5% bile salt for five weeks (37 days) to establish hypercholesterolemia, while groups III and IV were fed with normal diet for five weeks and thereafter administered with 250 and 500 mg/kg body weight of Tetracarpidium conophorum oil (TCO) respectively for 20 days. Group II was maintained on a hyper cholesterol diet, while Group V and VI were administered 250 and 500 mg/kg body weight of TCO respectively for 20 days, while group VII was given 80 mg/kg body weight of atorvastatin used as a reference drug. After six weeks of feeding with the respective diets, rats were deprived of food overnight. The blood sample was collected and biochemically analyzed for Total Cholesterol (TC), Triglyceride (TG), High-Density Lipoprotein Cholesterol (HDL-C) and Low-Density Lipoprotein (LDL-C), Malondialdehyde levels (MDA), Aspartate Transaminase (AST), Creatine Kinase (CK) and Lactate dehydrogenase (LDH) activities. The results showed that there was a significant increase ( $P<0.05$ ) in TC, LDL-C, CK, LDH, and MDA levels with a reduction in HDL-C in rats induced with high cholesterol diet after 37 days when related to the initial values at day 0. Oral administration of Tetracarpidium conophorum oil and atorvastatin drug for 20 days resulted in significant lowering ( $P<0.05$ ) of the levels of TC, LDL-C, CK, LDH and MDA levels with an increase in HDL-C in rats induced with high cholesterol diet. However, there was also significant decrease ( $P<0.05$ ) in TC, LDL-C, LDH, CK and MDA levels with an increase in HDL-C in rats administered with 250 and 500 mg/kg body weight of Tetracarpidium conophorum oil alone for 20 days in rats fed with normal diet when compared to control. There was no statistically significant difference in the AST level in both rats fed with normal and hyper cholesterol diets when compared to control throughout the

experiment. Tetracarpidium conophorum oil could effectively reduce or control the amount of serum cholesterol and LDL-C. The oil could contribute to new formulation with significant hypolipidemic effect and cardioprotective properties.

To say that walnuts are a nutritious food is a bit of an understatement. Walnuts provide healthy fats, fiber, vitamins, and minerals — and that's just the beginning of how they may support your health. There's so much interest in this one nut that for the past 50 years, scientists and industry experts have gathered annually at the University of California, Davis, for a walnut conference discussing the latest walnut health research. The most common variety of walnut is English walnut, which is also the most studied type. Here are 13 science-based health benefits of walnuts.

Rich in Antioxidants

Super Plant Source of Omega-3s

May Decrease Inflammation

Promotes a Healthy Gut

May Reduce Risk of Some Cancers

Supports Weight Control

May Help Manage Type 2 Diabetes and Lower Your Risk

May Help Lower Blood Pressure

Supports Healthy Aging

Supports Good Brain Function

Supports Male Reproductive Health

Improves Blood Fats

Widely Available and Easy to Add to Your Diet

Walnuts are an exceptionally nutritious nut. They have higher antioxidant activity and significantly more healthy omega-3 fats than any other common nut. This rich nutrient profile contributes to the many health benefits associated with walnuts, such as reduced inflammation and improved heart disease risk factors. Scientists are still uncovering the many ways that walnuts' fiber and plant compounds, including polyphenols, may interact with your gut microbiota and contribute to your health. You'll likely keep hearing more about walnuts in the years to come as more studies will research their beneficial health effects. Still, there are plenty of reasons to include them in your diet already today.

What are Antihyperlipidemic agents? Antihyperlipidemic agents promote the reduction of lipid levels in the blood. Some antihyperlipidemic agents aim to lower the levels of low-density lipoprotein (LDL) cholesterol, some reduce triglyceride levels, and

\*Corresponding author: Oriakhi Kelly, University of Benin, Nigeria, E-mail: kelly.oriakhi@uniben.edu

Rec date: Jun 20, 2020; Acc date: July 17, 2020; Pub date: July 24, 2020

Copyright: © 2020 Oriakhi Kelly This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

some help raise the high-density lipoprotein (HDL) cholesterol. Hypolipidemic agents, cholesterol-lowering drugs, or antihyperlipidemic agents, are a diverse group of pharmaceuticals that are used in the treatment of high levels of fats (lipids), such as cholesterol, in the blood (hyperlipidemia). They are called lipid-lowering drugs.

This work is partly presented at 2nd International Conference and Expo on Lipids: Metabolism, Nutrition & Health October 03-05, 2016

Orlando, USA This work is partly presented at EuroSciCon Joint Event On Biotechnology, Biochemistry and Aquaculture August 08-09, 2019 | Paris, France

**How to cite this article:** Oriakhi Kelly. "Editorial Highlights for International Research Journal of Biochemistry and Bioinformatics".doi: 10.37421/irjbb.2020.10.002