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## Mucilage of *Calophyllum inophyllum* Nuts Improves Some Metabolic Syndrome Features Associated with a Hypercaloric Diet in Wistar rats

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### ABSTRACT

Metabolic syndrome (MetS) is a multi-faceted condition involving dyslipidemia, hyperglycemia, and overweight. The present work investigates the effect of mucilage of *Calophyllum inophyllum* nuts on body weight, plasma glucose, and plasma lipids in an animal model. Firstly, male Wistar rats were fed a high-fat/high sucrose (HFS) diet made of standard laboratory chow enriched with sucrose and egg yolk (caloric content: fats: 33.20%; sucrose: 21.30%) for 33 days. Thereafter, they were divided into groups of five animals, each group receiving one of the following by oral route daily for 14 days: distilled water (HFS-Ctrl), mucilage at doses of 250 or 500 mg/kg body weight (HFS-Ci250 and HFS-Ci500 respectively). The body weight of rats was measured at 3-day intervals. Fasting plasma glucose, oral glucose tolerance, and plasma lipid profile were assessed at the end of the study and cardiovascular risk indices were calculated. Mucilage treatment caused a significant decrease in body weight in groups HFS-Ci250 (-8.56%,  $p < 0.05$ ) and HFS-Ci500 (-14.27%,  $p < 0.05$ ) in comparison with the

HFS-Ctrl group. HFS-fed rats treated with mucilage had an improved oral glucose tolerance with total incremental plasma glucose significantly lower than that of the HFS-Ctrl group. Mucilage-treated rats had significantly lower plasma total cholesterol, LDL-cholesterol, and triglycerides as well as higher HDL-cholesterol (+96.29%,  $p < 0.05$ ) which led to lower values of cardiovascular risk indices. Our results suggest that mucilage obtained from *Calophyllum inophyllum* nuts may find applications in the management of human MetS by addressing its features such as obesity, hyperglycemia, and dyslipidemias.

### BIOGRAPHY

William Dakam has completed his PhD at the age of 29 years from the University of Yaoundé 1, Cameroon. He is teaching biochemistry and nutrition at the University of Douala, Cameroon. Many of his publications have been cited by other scientists. He has been serving as an editorial board member and as a reviewer of reputed journals.

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