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## Nutritional composition and anti-hyperlipidemic effects of six varieties of *Musa Acuminata* (banana fruits) pulp

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Cardiovascular diseases arising from hyperlipidemia are a public health burden due to highly consumed carbohydrate and fat-rich diets. The use of natural anti-hyperlipidemic food plant that is readily available and relatively cheap can ameliorate the current situation. In this study, six varieties of *Musa acuminata* (Banana fruits), were investigated for nutritional profile and anti-hyperlipidemic properties. The proximate composition, amino acid profile, vitamin contents, mineral composition, anti-nutrients, phytochemicals present and the effect of diet inclusion of the six selected varieties of *Musa acuminata* pulp on Lipid profile of Wistar rats was determined using standard procedures. Results from proximate composition showed that lipid content was significantly ( $p < 0.05$ ) lower in *Musa acuminata* Red while calorie value was significantly ( $p < 0.05$ ) lower in *Musa acuminata* AAB group (Omni white) compared to other *Musa acuminata* species analyzed. Amino acid analysis showed that histidine, isoleucine, lysine, methionine, phenylalanine, threonine, tryptophan and valine were significantly ( $p < 0.05$ ) higher in the *Musa acuminata* Red when compared to other varieties of *Musa acuminata* analyzed. Vitamin analysis revealed that *Musa acuminata* Red was significantly ( $p < 0.05$ ) higher in vitamins A, B3, C and E but significantly ( $p < 0.05$ ) lower in B1. Vitamin B1 was significantly ( $p < 0.05$ ) higher in *Musa acuminata* AAA(Saro), while *Musa acuminata* AAB (Omni white) was significantly ( $p < 0.05$ ) higher in vitamin A. Mineral analysis showed that *Musa acuminata* Red was significantly higher ( $p < 0.05$ ) in Iron, magnesium, calcium and compared to other varieties of *Musa acuminata* pulp analyzed. Quantitative phytochemical screening of the six varieties of *Musa acuminata* pulp revealed that saponins and flavonoids content was significantly ( $p < 0.05$ ) higher in *Musa acuminata* Red, alkaloids and glycosides were significantly ( $p < 0.05$ ) higher in *Musa acuminata* AAB (Omni white) group, while phytates were significantly ( $p < 0.05$ ) higher in *Musa acuminata* Cavendish (Ahoru) species. In the in vivo experiment, it was observed that hyperlipidemic rats treated for 28 days with the different varieties of *Musa acuminata* pulp and fed 5% High Fat Diet (HFD) included with *Musa acuminata* Red had significant ( $p < 0.05$ ) reduction in serum TC, TG, LDL and significantly ( $p < 0.05$ ) increased levels of HDL when compared to the un-supplemented HFD group. The atherogenic index (Ax) was observed to be significantly ( $p < 0.05$ ) higher in the HFD fed group when compared with the Normal Feed Diet (PDF) control group. However, a significant ( $p < 0.05$ ) reduction was observed in the Ax of all the *Musa acuminata* varieties inclusion groups as well as the atorvastatin-treated group. The group fed with 5% HFD supplemented with *Musa acuminata* Red recorded the most significant reduction in Ax which was comparable to the atorvastatin-treated group. In conclusion, the results suggest that among the six varieties of *Musa acuminata* analyzed, *Musa acuminata* Red is highly nutritious and possess high anti-hyperlipidemic activity.

### Biography

Dorcas B James has a PhD in Biochemistry from Ahmadu Bello University, Zaria Nigeria, where she lecture, rose through dedication and hard work to her royal position of Professor. She's presently actively engaged in research and teaching in the area of Nutrition, Food Science and Toxicology. She has contributed many major activities in reputed local and international journal and actively engages a consultant to UNICEF on various aspect of community and public health nutrition that had a major impact on the nutritional status of the vulnerable groups within the populace.

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