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### Thaumatococcus danielli protein in formulated organic drink and snack significantly improved the nutritional status in wistar rats

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**M**icronutrient deficiencies are responsible for an estimated 1.1 million of the 3.1 million child deaths that occur each year as a result of under nutrition. Malnutrition is particularly prevalent in Sub-Saharan Africa requiring urgent intervention through a sustainable integrated innovation. This work investigates the effect of thaumatin in formulated nutritional drink and snack on the nutritional status of Wistar rats. Cocoa, Moringa and composite flour in combination with Thaumatococcus danielli protein as an organic sweetener. Cocoa powder and Moringa leaf powder were locally sourced from organically grown farms in South Western Nigeria. Thaumatococcus danielli protein was isolated from the fruit obtained from Thaumatococcus danielli collected from the wild. Isolation of Thaumatococcus danielli protein was carried out in accordance with standard procedure. Twelve Wistar rats of an average weight of 120 g, were acclimatized for

one week then subjected to the specially formulated organic drinks and snacks. The results revealed a significant ( $p \leq 0.05$ ) increase in vitamin A ( $37.55 \pm 0.821$ ), calcium value ( $26.45 \pm 0.821$ ), zinc ( $3.83 \pm 0.314$ ), iron ( $28.38 \pm 1.20$ ) and iodine value of  $1.49 \pm 0.62$  for group one and group two values are Vitamin A ( $36.10 \pm 0.65$ ), calcium value ( $26.83 \pm 0.38$ ), Zinc ( $4.10 \pm 0.341$ ), iron ( $29.08 \pm 1.11$ ) and iodine value of  $1.49 \pm 0.49$  for group two while group three which is the control has micronutrient value of Vitamin A ( $27.08 \pm 0.51$ ), calcium value ( $19.15 \pm 0.60$ ), zinc ( $1.87 \pm 0.30$ ), iron ( $20.40 \pm 0.91$ ) and iodine value of  $1.05 \pm 0.037$ . Based on the Results of this study suggest that formulated drinks and snacks from cocoa, Moringa and Thaumatococcus danielli protein produced a significant effect on the growth and micro nutrient levels of the experimental rats and thus hold potentials in combatting hidden hunger and malnutrition.

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