

## **Impact of Different Ripening Accelerators on the Microbial Load and Proximate Composition of Plantain (*Musa paradisiaca*) and Banana (*Musa sapientum*), during the Ripening Process, and the Nutrition Implication for Food Security**

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**Abstract :** This study reports on the impact of different ripening accelerators on the microbial load and proximate composition of plantain (*Musa paradisiaca*) and Banana (*Musa sapientum*) during the ripening process, and the nutrition implication for food security. The study comprised of four treatments, namely: Calcium carbide, *Irvingia gabonensis* fruits, *Newbouldia laevis* leaves and a control, where no ripening accelerator was applied to the fingers of plantain and banana. The unripe and ripened plantain and banana were subjected to microbial analysis by isolating and enumerating their micro flora using pour plate method; and also, their proximate composition was determined using standard methods. The result indicated that the bacteria count of plantain increased from  $3.25 \pm 0.33$  for unripe to  $5.31 \pm 0.30$  log cfu/g for (treated) ripened, and that of banana increased from  $3.69 \pm 0.11$  for unripe to  $5.26 \pm 0.21$  log cfu/g for ripened. Also, the fungal count of plantain increased from  $3.20 \pm 0.16$  for unripe to  $4.88 \pm 0.22$  log sfu/g for ripened; and that of banana increased from  $3.61 \pm 0.19$  for unripe to  $5.43 \pm 0.26$  for ripened. Ripened plantain fingers without any ripening accelerator (control) had significantly ( $p < 0.05$ ) higher values of crude protein  $3.56 \pm 0.06\%$ , crude fat  $0.42 \pm 0.04\%$ , total ash  $2.74 \pm 0.15$  and carbohydrate  $31.10 \pm 0.20$ ; but with significantly lower value of moisture  $62.14 \pm 0.07\%$  when compared with treated plantain. The proximate composition trend of treated and banana fingers control is similar to that of treated and plantain control, except that higher moisture content of  $75.11 \pm 0.07\%$  and lesser protein, crude fat, total ash and carbohydrate were obtained from treated and ripened banana control when the treatments were compared with that of plantain. The study concluded that plantain is more nutritious (mealy) than a banana; also, the ripening accelerators increased the microbial load and reduced the nutritional status of plantain and banana.

**Keywords :** food nutrition, calcium carbide, *Irvingia gabonensis*, *Newbouldia laevis*, plantain, banana

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