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Content of total phenolic, tannin and free phenolic compounds in East African highland banana cultivars (Musa spp) as affected by ripening and genotype

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ABSTRACT

East African Highland banana are used to produce low viscosity banana juice by mechanical process. Ability of banana to produce juice, is hypothesized to be linked with the phenolic content of a particular genotype. In this study eleven banana cultivars including juice (Musa AAA-EA) and cooking bananas (Musa ABB-EA) harvested at green matured stage and ripen for five days were analyzed for total phenolics content (TPC), phenolic profile and tannin content (TC) using Folin-cialteou method, whereas free phenolic compounds were determined by High performance liquid chromatograph method (HPLC-UV). Multivariate analysis of variance was used to determine the effect of ripening and banana genotype on TPC and TC. When considered jointly on TPC and TC significant effect of genotype (cultivar) was observed for both TPC and TC ($p \leq 0.05$). However, the effect of ripening was not significant ($p \leq 0.05$) on TC and TPC. In addition the interactive effect of independent variables (genotype*ripening) was not statistically significant ($p \leq 0.05$) on both of the dependent variables (TPC and TC). Juice cultivars contained high amount of tannins compared to cooking cultivars. Also HPLC results showed that juice cultivars contain high amount of gallocatechin while cooking cultivars showed to have high amount of gallic acid. From the results it can be concluded that, high amount of tannin and gallocatechin are the main determinants for juice release from banana pulp. Association of these compounds with other tissue components should be established and taken into accountduring designing of technological processes to guide the yield and quality of the end product.

BIOGRAPHY

Ms. Nuria Majaliwa is the PhD student at the department of Biology and Biological Engineering, Chalmers University of Technology, Goteborg, Sweden. She received her BSc in Food Science and Technology and MSc in Food Science from Sokoine University of Agriculture, Tanzania. She is supervised by Professor Marie Alminger, at the division of Food and Nutrition Science, Chalmers University of Technology and Dr Oscar Kibazohi at department of Chemical and Mining Engineering, University of Dar es Salaam.

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