



Effect of conservation methods on the mineral contents of some maize varieties (*Zea mays* L.) produced in Côte d'Ivoire

Deffan Kahndo Prudence^{1*}, Nemlin Gnopo Jean², Akanvou Louise², Deffan Zranseu Ange Benedicte², Kouamé Patrice¹

¹ Department of Food Science and Technology, University of Nangui-Abrogoua, 02 PO Box 801 Abidjan 02, Côte d'Ivoire

² Laboratory of Technological Research Station, National Center of Agronomic Research, 08 BP 881 Abidjan 08, Côte d'Ivoire

*Author of correspondence: 08 BP 881 Abidjan 08, Côte d'Ivoire, E-mail: pdeffan@yahoo.fr

Original submitted in on 18th September 2015. Published online at www.m.elewa.org on 31st October 2015

<http://dx.doi.org/10.4314/jab.v94i1.7>

ABSTRACT

Objective: The aim of this study was to evaluate the effect of conservation methods on the mineral content of some maize varieties during post-harvest storage. To meet the needs for the human and animal consumption, it is necessary to determine the mineral contents of raw materials.

Methodology: Eight maize varieties, including two local varieties used as controls ("Violet de Katiola" and AC176) and six improved varieties (Obatanpa, MDJ, EV8728, GMRP18, Acr97TZLcomp-1w and Acr97TZLcomp-1wsynth), produced by the Centre National de Recherche Agronomique (CNRA), were stored according to three preservation methods (granary, attic and jute bag) during 120 days. Sampling was performed every 30 days, followed by chemical analyses.

Results: The ash contents of local varieties were better preserved in the granary than in the attic or the jute bag because no significant variation was observed at the end of the preservation time. In improved varieties, all the ash contents varied. Concerning constitutive minerals, magnesium and calcium contents were preserved in all varieties respectively during 30 and 120 days of storage in the granary, the attic and the jute bag. On the other hand, some variations were observed for potassium and phosphorus contents. For example, "Violet de Katiola" potassium content was best preserved in the jute bag during 120 days; AC176 and EV8728 potassium contents were best preserved in the attic respectively during 90 days and 60 days. The three preservation modes were suitable to maintain ACr97 comp1wsynth potassium content between 60 and 120 days; but in this variety, phosphorus was best preserved in the attic during 90 days.

Conclusion: The three modes of maize grain storage were suitable to preserve magnesium and calcium contents of local and improved varieties and Acr97TZLcomp1-wsynth potassium content.

Keywords: Maize, variety, mineral content, preservation, period, Côte d'Ivoire.