Shelf Stability, Microbiological and Physicochemical Studies of 'Zobo' Drink Pasteurized and Treated with Preservative

*[1]Chukwu, V. C., [1]Damisa, D., Abdullahi, I. O[2], Jiya M. J.[3]
[1]Department of Microbiology, School of Life Sciences, Federal University of Technology, Minna, Niger State, Nigeria

[2]Department of Microbiology, Ahmadu Bello University, P.M.B. 1045, Zaria, Kaduna State, Nigeria

[3]Department of Food Science and Technology, School of Agriculture and Agricultural Sciences, Federal University of Technology, Minna, Niger State, Nigeria

*Corresponding Author: victorchukwuc@gmail.com; 08064566520

ABSTRACT

The combined effect of pasteurization, improved hygiene and varied concentrations of sodium benzoate on the shelf life and physicochemical properties of 'Zobo' drink were evaluated. Freshly prepared 'Zobo' drink samples were aseptically dispensed into 100mL capacity plastic bottles containing various concentrations of sodium benzoate (0.05%, 0.25%, 0.50%, 0.75% and 1.00%). Six 'Zobo' samples were prepared from the calyxes of *Hibiscus sabdariffa* using modified method that combined the use of HACCP and Hurdle Technology for preservation and stored on the shelf for eight weeks. Analyses were carried out on a weekly basis with respect to loss in vitamin C content, microbial quality and physicochemical properties of the beverage for eight weeks. These parameters changed significantly ($p<0.05$) with respect to the method of treatment and storage period. Pasteurization at 68^{o}C for 20 minutes successfully eradicated all coliforms and pathogenic organisms as none was isolated from the drink throughout the eight weeks of shelf study. *Lactobacillus fermentum* and *Saccharomyces cerevisiae* isolated from the control samples were responsible for the spoilage and deterioration of the beverage. Although the five different concentrations of

the preservative used in combination with pasteurization were effective in extending the shelf life of the beverage, sample Bz 0.05% preserved better than all others without imparting negatively on the vitamin C content and other physicochemical properties of the drink.

Keywords: Zobo drink, Sodium Benzoate, Pasteurization, shelf life