Shelf Life Improvement of Boiled and Dried Palmyrah Tuber (*Pulukkodiyal*) With Preservatives

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Shelf life of boiled and dried palmyrah tubers, which are known as *pulukkodiyal* in Northern part of Sri Lanka, is limited to nearly 6 months due to activities of microbes and insects. Therefore a study was carried out to improve shelf life of *pulukkodiyal* with the usage of different preservatives. Preservation of *pulukkodiyal* was carried out with maximum permitted level concentrations of preservatives such as sodium metabisulphite (SMS) (0.5 %), sodium benzoate (SB) (0.1 %), sorbic acid (0.1 %), citric acid (0.1 %) and combinations of SMS (0.25 %) and SB (0.05 %). Untreated sample was used as a control. The samples were soaked in above preservative solutions. Microbial analysis namely total plate count (TPC) and yeast and mould count (Y&M) were done for different preservatives treated and untreated oven dried samples. Results of microbial analysis indicated that samples treated with SMS have lowest level of microbial counts (TPC-$2.7x10^1$ cfu/g, Y&M-0) compare to other preservative treated samples and control. After that, optimum concentration and optimum soaking time were find out for SMS treated samples. Sensory analysis was also done for treated and untreated samples. Based on the results of microbial and sensory analysis 0.5 % SMS with 5 hours of soaking time was selected as the best treatment. Then the above preservative treated and untreated tubers were stored in High Density Poly Ethylene (HDPE) and Low Density Poly Ethylene (LDPE) bags and microbial analysis was done at one month interval up to two months for shelf life studies. According to food regulation microbial count of ready to eat foods should be less than 10^4cfu/g. This limit was satisfied in SMS added *pulukkodiyal* packed in HDPE and LDPE but not in untreated *pulukkodiyal.* The TPC and Y&M count was slightly higher in samples packed in LDPE after 2 months when compare to samples packed in HDPE. Therefore based on the results of this studies shelf life of *pulukkodiyal* can be improved by application of 0.5 % SMS soaked for 5 hours with good sensory properties. Usage of HDPE as a packaging material will improve their shelf life further.

Key words: Microbial analysis, Preservatives, *Pulukkodiyal*, SMS, HDPE