

## **EFFECT OF NATURAL CABBAGE and TARO EXTRACTS ON OXIDATIVE ENZYMES ACTIVITY OF FROZEN AND DRIED BANANA PRODUCTS**

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### **ABSTRACT**

In this study, effect of taro peel and taro pulp extracts pre-treatments compared with those of cabbage on oxidative enzyme activities of frozen banana pulp and dried banana rings was investigated. Therefore, fresh banana rings were dipped in natural extracts from cabbage, taro peel and taro pulp. The effects of this pretreatment, freezing and drying on oxidative enzymes activity, colour characteristics, and total phenol contents of banana pulp and rings were recorded.

The best used concentration of cabbage, taro peel and pulp extracts pre-treatment was found to be 15%, hence it improved the final acceptability and inhibited oxidative enzymes (PPO, POD and catalase) activity for banana pulp and rings. However, it could be noticed that addition of taro pulp extract at 15% in the soaking solution took place as the inhibition of 54%, 44% and 54% for PPO, POD and CAT, respectively increased in banana pulp. Meanwhile, such addition showed 44%, 46% and 60% of PPO, POD and CAT, respectively inhibition in banana rings. Generally, the result showed that utilization of taro pulp extracts at 15% prevent any browning for all frozen banana pulp and dried banana rings compared with untreated samples. The banana pulp and rings pretreated with taro pulp extract caused the highest reduction of oxidative enzyme activities followed by Taro peel extract.

Results indicated that the treatment with cabbage and taro pulp extracts inhibited PPO, POD and CAT activity after dipping reached to 54, 44 and 54%, respectively. Dried treated banana rings had the highest values for inhibition oxidative enzymes activity sample compared with frozen banana pulp and untreated samples. Also, results showed a decrease in the total phenols content of dried banana rings comparing with frozen banana pulp after pre-treatment with cabbage and taro extracts.

**Keywords:** banana, pulp, rings, drying, polyphenoloxidase, peroxidase, catalase, colour, extracts, browning, cabbage, taro.

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### **INTRODUCTION**

The freezing and drying preservation of fruits is one of the growing food industries in Egypt in the last decade. Frozen and dried products find an extending market. Prevention of browning in the banana slices is difficult to achieve because of rapidity of the enzymatic oxidation of phenolic substrates. The most serious problem in the freezing and drying preservation of fruits is the activity of the oxidative enzymes, which results in quality and nutritional deterioration of the food product during the frozen and dried storage. Drying fruits is an established in Egypt, while freezing banana is a promising new trend to produce an intermediate product for many food processing.