

Effect of steam and microwave blanching against enzymatic browning of chilled saba banana (*Musa Spp.*, Bbb)

ABSTRACT

The browning process, either enzymatic or non-enzymatic, is commonly used in food processing. Most browning process is avoided to maintain the food products' quality. This study was carried out to investigate the effect of steam blanching and microwave blanching against the enzymatic browning of chilled Saba bananas (*Musa spp.*, BBB). The steam and microwave blanching in a range of 3 to 11 minutes and 30 to 90 seconds, respectively, were carried out to investigate the efficiency of deactivating the activity of the enzyme polyphenol oxidase (PPO). The results indicated that steam blanching for 7 minutes (SB7) and microwave blanching for 60 seconds (MB60) are the best treatments, reducing 92.07% and 82.63% activity of enzyme PPO, respectively. Bananas treated with SB7 and MB60 were then stored in chillers and showed no significant difference ($p>0.05$) in the activity of enzyme PPO for the 4 weeks of storage. Besides, the phenol content of both treated bananas demonstrated no significant difference ($p<0.05$) for the first 3 weeks. Both treated bananas also showed no significant difference ($p<0.05$) in the total color difference for the whole 4 weeks of storage. Moreover, the firmness of bananas treated with steam blanching is significantly ($p<0.05$) higher than that of bananas treated with microwave blanching, which started in week 1. The water activity of bananas treated with microwave blanching is significantly ($p<0.05$) lower than that of other samples. For the microbiological test, the numbers of bacteria, yeast, and mold in bananas from both treatments were still lower than the recommended standard. In conclusion, microwave blanching for 60 seconds is found to be the best treatment as compared to steam blanching, which have a sufficient reduction in PPO enzyme activity but still maintains the color, retains the lower water activity, and does not affect the texture of the treated banana.