

Effects of blanching and pickling process on the alcohol acyltransferase (AAT) activity, myristicin content and quality parameters of pickled nutmeg (*Myristica fragrans*)

ABSTRACT

Myristicin, a potential toxicant, is a major ester present in the pericarp of nutmeg (*Myristica fragrans*) and alcohol acyltransferase (AAT) is responsible for its generation. The objective of the study was firstly to estimate the effect of blanching and pickling process on the inactivation of AAT and production of myristicin in nutmeg pericarp. Secondly, the effect of pickling process on the physical, microbial, antioxidant and sensory properties of nutmeg was evaluated. The nutmeg fruit pericarp was water-blanching for 0, 3, 5, 7 and 9 min. The increased blanching time significantly ($p < 0.05$) reduced the AAT activity (3.478 U/mg protein) compared to fresh nutmeg (39.034 U/mg protein). The reduction of myristicin was so efficient that it could not be detected after 9 min of blanching. Similarly, the pickling process significantly ($p < 0.05$) inhibited the AAT activity and lowered the myristicin content. However, the blanching significantly ($p < 0.05$) lowered the total phenol content and reduced the free radical scavenging capacity of pickled nutmeg (BP) when compared with commercial pickled nutmeg. Blanched pickled nutmeg (BP) presented the same color characteristics as of commercial one, although significant reduction in hardness was observed. No growth of yeast and mold was noticed for all the blanched pickled nutmeg. The sensory analysis data demonstrated that blanching up to 7 min maintained the overall acceptability of pickled nutmeg as of commercial pickled nutmeg. Thus, the study suggests that blanching and pickling treatment improved the quality of nutmeg effectively by inhibiting the AAT activity and reducing the myristicin content.

Keyword: Microbial quality; Nutmeg; Phenolics; Radical scavenging; Sensory analysis