ABSTRACT

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STUDY OF ANTIOXIDANT ACTIVITIES IN VARIOUS MUSHROOMS DUE TO BROWNING MECHANISMS
(xiv + 116 pages : 4 tables; 15 figures; 3 appendices)

Browning reaction is common phenomenon that occurs in food product either enzymatically or non-enzymatically. This research was intended to know the effect of browning through heating in oven 100°C for 1, 1.5, and 2 hours (non-enzymatic browning) or exposing it to open air for 2, 4, and 6 hours (enzymatic browning). Browning reactions were applied in three types of mushrooms cultivated in Indonesia; white champignon mushroom (Agaricus bisporus), straw mushroom (Volvariella volvaceae), and white oyster mushroom (Pleurotus florida). Different heating time in non-enzymatic browning affected the quality parameters of mushrooms. Increasing heating time increased BI, and also final and intermediate browning product. One hour heating time provided highest TPC and TAA in oyster and straw mushrooms, while heating condition resulted in decrease of TPC and TAA in champignon at all heating time. The exposure time to open air became an important factor towards the quality parameters in inducing enzymatic browning. The value of BI, intermediate, and final browning product, and TPC gradually increased with increasing exposure time. The TAA was highest in the mushrooms exposed to open air for 6 hours on oyster, straw, and champignon mushrooms.

Keywords: Mushroom, browning reaction, maillard reaction, polyphenoloxidase, total phenolic, antioxidant activity, browning index

References: 76 (1963-2010)