

ANTIOXIDANT AND POLYPHENOLOXIDASE INHIBITORY ACTIVITY OF VIETNAM EDIBLE PLANTS AND ITS APPLICATION IN FISHREY QUALITY IMPROVEMENT

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ABSTRACT

Six edible plants grown in Vietnam were selected to investigate antioxidant and polyphenoloxidase inhibitory activity, including, betel leaf (B), green tea leaf (GT), guava leaf (G), sweet potato leaf (S), piper lolot leaf (P), and noni leaf (N). Antioxidative activities were evaluated by DPPH free radical scavenging capacity, total reducing power capacity and inhibitory of lipid oxidation in β -carotene-linoleic acid model system. In addition, polyphenol content of these edible plants were also determined. Finally, the selected edible plant extract was used to control melanosis formation on shrimps. Research results showed that all of edible plants exhibited antioxidative activity and its antioxidant activity depended on species. Polyphenol content was different from species to species. Accordingly, their values varied from 11.7 to 188 mg GAE/g db. Polyphenoloxidase inhibitory activity also differed with species. Accordingly, guava leaf extract had the highest inhibitory activity of Polyphenoloxidase (76.4%), followed by betel leaf (71.3%), green tea leaf (61.4%), piper lolot leaf (43%), sweet potato leaf (40.3%), and noni leaf (38.8%). Results also indicated that the guava aqueous leaf extract exhibited an effective prevention of melanosis formation and lipid oxidation of shrimps during refrigerated storage compared with the control sample ($p < 0.05$). Our findings revealed that potential of using edible plant extracts to improve fishery material quality after postharvest.

Keywords: *Antioxidant activity, edible plant, lipid oxidation, melanosis formation, polyphenol oxidase.*

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