

Effect of Red Cabbage Antioxidant Extracts on Lipid Oxidation of Fresh Tilapia

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Abstract : Oxidation of polyunsaturated fatty acids (PUFA), eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) in fish causes loss of product quality. Oxidative rancidity causes loss of nutritional value and undesirable color changes. Therefore, powerful antioxidant extracts may provide a relatively low cost and natural means to reduce oxidation, resulting in longer, higher quality and higher value shelf life of foods. In this study, we measured effects of red cabbage antioxidant on lipid oxidation in fresh tilapia filets using thiobarbituric acid reactive substances (TBARS) assay, peroxide value (PV) and color assesment analysis. Extraction of red cabbage was performed using an efficient microwave method. Fresh tilapia filets were dipped in or sprayed with solutions containing different concentrations of extract. Samples were stored for up to 9 days at 4°C and analyzed every other day for color and lipid oxidation. Results showed that treated samples had lower oxidation than controls. Lipid peroxide values on treated samples showed benefits through day-7. Only slight differences were observed between spraying and dipping methods. This work shows that red cabbage antioxidant extracts may represent an inexpensive and all natural method for reducing oxidative spoilage of fresh fish.

Keywords : antioxidant, shelf life, fish, red cabbage, lipid oxidation

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