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Clove Essential Oil Improves Lipid Peroxidation and Antioxidant Activity in Tilapia Fish Fillet Cooked by Grilling and Microwaving

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Abstract : The fish meat plays an important role in the human health as it contains high quality protein. The tilapia fish considered as the third largest group of farmed fish. The oxidative deterioration of fish meat may occur during the cooking process. The proper cooking process and using natural antioxidant to prevent oxidation and enhance the quality of the tilapia fish fillet is necessary. Hence, this research was carried out to evaluate the potential of clove essential oil to prevent lipid peroxidation and enhance the antioxidant activity of tilapia fish fillet cooked using microwave and griller. The results showed that cooking using microwave significantly ($p < 0.05$) increased the lipid peroxidation and decreased the DPPH and ferric reducing activity power of the fish fillet as compared to grilling. The fortification of fish fillet using clove essential oil prevented from lipid peroxidation and enhanced the antioxidant activity of the fish fillet significantly ($p < 0.05$). Consequently, fortification of tilapia fish fillet using clove essential oil followed by cooking using griller to have high quality cooked fish meat is recommended.

Keywords : antioxidant activity, fillet, fish, fortification, lipid peroxidation
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