

Public Abstract

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Title:EFFECT OF LACTIC ACID SOURCE ON PROPERTIES OF SILVER CARP RESTRUCTURED WITH ALGINATE GEL

Silver carp, *Hypophthalmichthys molitrix*, is an invasive species in the United States which can be used to make value-added products. The objective of this study is to compare different acidification methods' effect on developing silver carp patties by using alginate as a cold setting binder. There were four treatments: lactic acid bacteria (LAB) fermentation (F), control (C), encapsulated lactic acid (En) and powdered lactic acid (LA). Fish were mixed with the same amount of sodium alginate (3.6%), calcium carbonate (1.2%) and dextrose (3%). The F treatment was inoculated with \log_5/g fish *Lactobacillus. curvatus* in sterile peptone water, the C treatment had sterile peptone water as a blank control. Then the two treatments were incubated at 37°C for 30 hours. After obtaining the level of different lactic acid amounts (LD) from the F and C treatments, the LD was applied to En and LA and then they underwent fermentation for 30 hours. Bacteria count, pH and lactic acid concentrations were determined at 0h, 6h, 10h, 18h, 25h and 30h for every treatment. After cooking, the puncture test and texture profile analysis were conducted to test the internal bindings of the four treatments. Results showed that F had the lowest pH, highest level of lactic acid concentration (LAC), highest binding, highest lightness and whiteness ($P<0.05$). En had the second highest binding strength ($P<0.05$), LA and control had the lowest binding strength ($P<0.05$). Although there were strong positive relationships between LAC and binding strength, this did not apply to comparisons of C, LA and En, since C had the lowest LAC but the binding strength was very similar to those of En and LA. This study indicated that organic acid by fermentation can support alginate gel formation in restructured silver carp patties and slow acidification by fermentation resulted in a different product than fast acidification by encapsulated and powdered lactic acid.