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

Kangzi Ren

Dr. Andrew D. Clarke, Thesis Supervisor

ABSTRACT

This study investigated the effect of different lactic acid sources on alginate gel formation in restructured silver carp (*hypophthalmichthys molitrix*) patties. 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 log5/g fish *Lactobacillus. curvatus* in sterile peptone water, the C treatment had sterile peptone water as a blank control. After incubating at 37^{o}C for 30 hours, the level of different lactic acid amount (LD) from the F and C was applied to En and LA treatments and they also underwent fermentation for 30 hours. Puncture test and texture profile analysis were conducted to test the internal bindings of the four treatments. Results showed that there were strong positive relationships between lactic acid concentration and binding strength, and fermentation treatments (F and C) were more effective than 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.