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Inhibitory effect of sesame oil and chitosan against Salmonella in mayonnaise

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The objectives of the current study were to investigate the effect of totally (100% sesame oil) or partially (50% sesame oil and 50% corn oil) replacing corn oil with sesame oil on Salmonella spp. in mayonnaise stored at 4, 10 or 24°C and the inhibitory effect of chitosan at 0.5 to 1.0% against Salmonella spp. in mayonnaise. Effect of chitosan on mayonnaise particle size was also investigated. Salmonella cells were not detected in mayonnaise prepared with 50% sesame oil and 50% corn oil or by addition of 0.5 to 1% chitosan at and beyond 1 day; however, cells were not detected in mayonnaise prepared 100% corn or sesame oils by 7 days at 24°C. Further, Salmonella numbers were reduced by approximately ≤1.2 log CFU/g in totally or partially sesame oil-treated mayonnaise or in mayonnaise containing 0.5 to 1% chitosan and stored at both 4 and 10°C compared to mayonnaise prepared with corn oil (control without chitosan). The addition of chitosan enhanced the viscosity of mayonnaise and reduced the particle size of droplets which were 50, 24.1 and 6.1 µm in mayonnaise treated with 0, 0.5 and 1.0% chitosan. The results showed that replacing of corn oil with sesame oil in manufacturing of mayonnaise or addition of chitosan have the potential to reduce the presence of Salmonella in this product and enhance the reduction in the particles size and their distribution.

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