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The Effect of the Antibiotic Chlortetracycline On Shrimp Freshness

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ABSTRACT

Control of bacterial spoilage in fish fillets, eviscerated, or round fish by the use of the antibiotic chlortetracycline has been demonstrated by Tarr and others. An investigation at The Marine Laboratory of the University of Miami was concerned with development of methods of application of CTC under commercial conditions to retard bacterial spoilage in pink shrimp, *Penaeus duorarum*. Results from these tests show that at levels of no less than 30 ppm (applied as a dip for five minutes) and five ppm in ice, the period preceding the rapid rise in bacterial growth can be extended by as much as seven days. Organoleptic tests showed that odor scores were higher for the treated samples than for the non-treated samples. Flavor was improved by all concentrations of CTC tested when applied as a dip. No differences in flavor were detected by the panel when shrimp were stored in CTC ices. The formation of black spot in shrimp seems to be accelerated in the presence of calcium and other bivalent ions and it was necessary to use a monovalent ion, such as potassium, in the preparation of ices containing the antibiotic. Cooked shrimp showed a considerable reduction in the residual content of CTC compared with uncooked samples, and generally less than one microgram (30 ppm CTC dip) after the ninth to tenth day of iced storage. Shrimp stored in CTC ices generally showed less than 0.15 micrograms of residual CTC during the ninth to twelfth storage day.
