

TITLE: MINIMUM INHIBITORY CONCENTRATION OF SODIUM HYPOCHLORITE FOR THE INACTIVATION OF *SALMONELLA ENTERICA* THIPHIMURIUM AND *SALMONELLA ENTERICA* NODOLO ISOLATED FROM NATIVE FISH PROCESSING

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ABSTRACT:

Salmonella spp. has been identified as the major cause of food-borne diseases in humans, including those isolated from fish. One of the recommended methods to control this bacteria is washing the fish with sanitizers at the beginning of processing. In Brazil, sodium hypochlorite is the only sanitizer agent authorized to that purpose. The objective of this study was to determine the minimum inhibitory concentration (MIC) of sodium hypochlorite for the inactivation of strains of *S. Typhimurim* and *S. Ndolo* previously isolated from fish (*Colossoma macropomum* x *Piaractus brachypomus*) in an industrial processing plant in the state of Mato Grosso, Brazil. For that, a commercial 12% sodium hypochlorite sanitizer was used to prepare solutions with different concentrations, ranging from 0.039 to 2560 ppm, following the macrodilution technique described by the Clinical and Laboratory Standards Institute. Both *Salmonella* isolates were cultured in TSB broth (35°C, 24h) and aliquots of these broths (10⁵ CFU/mL) were inoculated in each sodium hypochlorite concentration. After 24h incubation at 35°C, the lowest concentration of sodium hypochlorite with no bacterial growth (no turbidity) was considered the MIC. The lack of bacterial growth was confirmed by plating aliquots of the selected tubes in Muller Hinton agar. *S. Typhimurium* showed MIC of 1280 ppm and, *S. Ndolo*, 640 ppm. By those results, both strains were considered resistant to sodium hypochlorite as their MICs were higher than the usage concentration recommended by the Codex Alimentarius (10 ppm) and the Brazilian legislation (5 ppm). Our findings evince the need for complementary studies to evaluate not only the MICs of sodium hypochlorite in a real situation, at a fish processing plant, but also the decimal reduction time of *Salmonella* at those MICs in order to establish proper measures to control this pathogen in the fish processing.

Keywords: fish, food safety, *Salmonella*, sodium hypochlorite, MIC.