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Effects of salt on metabolites of halophilic histamine-related bacteria

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Summary

Histamine content and numbers of histamine-forming and histamine-decomposing bacteria in 10 fish-nukazuke (a salted and fermented fish with rice-bran) products (five mackerel-nukazuke, three sardine-nukazuke, one codfish-nukazuke and one puffer-nukazuke) were determined with a simple method using histamine-dehydrogenase microplate assay. Two mackerel-nukazuke and two sardine-nukazuke products showed high content of histamine from 12.6 to 30.5 mg/100g. The both number of halophilic histamine-forming and histamine-decomposing bacteria were various in the fish-nukazuke products. The histamine concentration was tended to be low in the product containing high number of halophilic histamine-decomposing bacteria. These results suggest that accumulation of histamine in fish-nukazuke may be affected by histidine content and halophilic histamine-related bacteria. Main histamine forming bacteria were *Tetragenococcus*. The RFLP analysis of 16S rDNA of the histamine forming bacteria indicated that the strains were *T. halophilus* or *T. muriaticus*. They could grow and produce histamine in the 'nukazuke' condition, e.g. NaCl 15% and pH 5.5.