

Title           Combination effect of phosphate and modified atmosphere on quality and shelf-life extension of refrigerated seabass slices

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### **Abstract**

Effect of pretreatment with three different phosphate compounds including trisodium phosphate (TSP), sodium pyrophosphate (PP) and sodium tripolyphosphate (STPP) in combination with modified atmosphere packaging (MAP) (80%CO<sub>2</sub>, 10%O<sub>2</sub>, 10%N<sub>2</sub>) on seabass slices stored at 4 °C was investigated. Phosphate pretreatment showed the synergistic effect with MAP on reduction of microbiological, chemical and sensory deterioration of seabass slices as evidenced by the lowered microbial counts, total volatile base and trimethylamine, compared with samples stored in air and those kept under MAP. Pretreatment with PP resulted in the retarded protein denaturation as evidenced by the reduced changes in sulfhydryl content and surface hydrophobicity during the extended storage. Increase in water uptake ability accompanied by the decreased exudate loss was observed in samples pretreated with phosphates, especially pyrophosphate. No marked autolytic degradation in samples kept under MAP with and without phosphate pretreatment was observed throughout the storage as indicated by no changes in trichloroacetic acid soluble peptide. Therefore, the effective retardation of microbiological, chemical, and sensory deterioration of seabass slices stored under MAP could be achieved by pretreatment with pyrophosphate.