

Physicochemical properties, microbial profile, and biogenic amines content of barramundi (*Lates calcarifer* Bloch) fillets wrapped in selected packaging films under modified atmosphere packaging

ABSTRACT

The purpose of this study was to investigate the effect of packaging film on physicochemical properties, microbial profile, and biogenic amines content of barramundi (*Lates calcarifer* Bloch) fillets packed in polyamide, polypropylene, and low-density polyethylene films and kept at 8°C more than 20 days under modified atmosphere packaging. Putrescine and cadaverine were the most abundant amines, whereas the concentration of histamine ranged from less than 0.5 (not detected) to 198.0, 264.3, and 308.5 mg/kg for polyamide, polypropylene, and polyethylene (low-density polyethylene) films, respectively. Among the three, the psychrotrophic bacteria count was initially 4.26 log colony forming units/g and exceeded the acceptable limit of 7 log colony forming units/g on the 16th day of storage for polyamide and on 12th day of storage for polypropylene and polyethylene. However, the total plate count, among the three packaging films, was initially 3.54 log colony forming units/g and exceeded the acceptable limit of 6 log colony forming units/g on the 12th day of storage. The histamine-forming bacteria count was significantly ($p < 0.05$) lower in barramundi fillets packaged with polyamide compared to polypropylene and polyethylene. The significant difference ($p < 0.05$) was observed between the concentration of amines in polyamide as compared with polypropylene and polyethylene. Among the three packaging materials, polyamide was found to be the best for prolonging the storage of barramundi fillets.

Keyword: Barramundi; *Lates calcarifer*; Biogenic amines; Packaging films; MAP; Histamine