

**Effects of different levels of CO<sub>2</sub> on biochemical changes and relationships among different quality indices in Indian mackerel (*Rastrelliger kanagurta*)**

**ABSTRACT**

The profile of total volatile base nitrogen (TVBN), pH, biogenic amines were studied in Indian mackerel packed under different levels of CO<sub>2</sub>. Gutted and beheaded Indian mackerel was stored in air, vacuum packaging (VP), 30% CO<sub>2</sub> /65% N<sub>2</sub> /5% O<sub>2</sub> (M30C), 60% CO<sub>2</sub> /35%N<sub>2</sub> /5%O<sub>2</sub> (M60C), 80% CO<sub>2</sub> /15%N<sub>2</sub> /5% O<sub>2</sub> (M80C) and 100% CO<sub>2</sub> (M100C) at 5°C for 12 days. The application of VP and MAP was effective in retarding the formation of TVBN, total biogenic amines and improve the shelf life of Indian mackerel. Cadaverine obtained the best correlation with storage time when compared with other biogenic amines. Cadaverine or cadaverine + putrescine can serve as a reliable objective freshness indicator of fish stored in different atmospheres. Among the commonly used freshness indices, TVBN was the best quality indicator correlated with histamine. VP and MAP conditions influenced the performance of quality indicators. pH was a good quality indicator of spoilage in air-stored fish except for VP and MAP packed fish. Lower value of TVBN (30 mg/100g) was suggested as an upper limit for this species of fish under MAP condition based on APC and sensory result.

**Keyword:** Histamine; Storage; Aeromonas; Vacuum packaging; Dominant microflora