

**THE IMPACTS OF OLIVE BY PRODUCT ON BIOGENIC AMINE  
PRODUCTION BY BACTERIA ISOLATED FROM SPOILED FISH**

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The antimicrobial effects of olive by products (olive leaf extract:OL, olive cake: OC and black water:BW) on eleven fish spoilage bacteria (*Ent. cloacae*, *Ser. liquefaciens*, *Prot. mirabilis*, *Phot. damseale*, *Pseu. luteola*, *Pantoea spp.*, *V. vulnificus*, *Steno. maltophila*, *A. lwoffii*, *Pasteurella spp.* and *Citrobacter spp.*) isolated from anchovy, mackerel and sardine were investigated. Their impacts on bacterial growth and biogenic amine production were also monitored in anchovy infusion decarboxylase broth (AIDB). Minimum inhibition concentration (MIC) of BW ranged from 12.5 to 50 mg/mL, whereas OL and OC had MIC ranging from 0.78 and 12.5 to 25 and 50 µg/mL, respectively. Bacterial strains were more sensitive to OLE than other olive by products, followed by OC. Bacteria isolated from fish had a capable to produce ammonia and biogenic amine (TMA, dopamine, serotonin, agmatine and tyramine). Fish spoilage bacteria produced histamine in range from 0.99 mg/L (*Ser. liquefaciens*) to 9.66 mg/L (*A. lwoffii*) in AIDB. The effect of olive by products on ammonia and biogenic amine accumulation varied depending on specific bacterial strains and biogenic amine. OC and OLE were generally stronger effect on reducing histamine accumulation by food borne-pathogens. OLE, followed BW seemed to more effective to reduce histamine and tyramine production by fish spoilage bacteria than OC. Our results showed the potential effect of olive by products to prevent or reduce the accumulation of biogenic amine.

Keywords: Olive by-products, fish spoilage bacteria, biogenic amine

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