

Changes in quality and microbial succession of lightly salted and sugar-salted blunt snout bream (*Megalobrama amblycephala*) fillets stored at 4°C

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The effect of a low concentration of salt and sugar on the quality and microbial succession in blunt snout bream (*Megalobrama amblycephala*) fillets was assessed by sensory analysis, total volatile basic nitrogen, biogenic amines, K value, total viable counts (TVC), 16S rRNA gene analysis and Illumina MiSeq PE300 high-throughput sequencing. Fish samples were left untreated (control), treated with 1.8% salt (T1) or treated with 1.8% salt plus 0.9% sugar (T2). Consequently, salted and sugar salted treatments extended the shelf life of bream fillets by 2 days, which retarded the increase of total volatile basic nitrogen, putrescine, cadaverine and total viable counts. The putrescine and cadaverine concentrations of T2 were significantly ($P < 0.05$) higher than T1 after day 10. *Brachy bacterium* spp. was the major initial microbiota of bream fillets. As storage time progressed, shifts in the microbial community and lower diversity of microbiota were observed. *Pseudomonas* spp. and *Shewanella* spp. were major genera in the spoiled

control group. *Pseudomonas* spp., *Shewanella* spp., and *Pseudoalteromonas* spp. became the main spoilers in the T1 and T2 groups. The top three dominant species *Pseudomonas versuta* (16/84), *Shewanella putrefaciens* (12/84) and *Aeromonas sobria* (11/84) were used and inoculated in sterile flesh blocks. The initial TVC value of inoculated groups were within 4.5-5 log CFU/g and showed a significant increase during storage, especially for the group inoculated with *Pseudomonas versuta* (from 4.49 to 9.59 log CFU/g), while the control group was below 2.0 log CFU/g all the time. *Pseudomonas versuta* was observed a strong corruption capacity of sarcoplasmic degradation and cadaverine accumulation; *Shewanella putrefaciens* exhibited a strong corruption capacity of myofibrillar degradation and putrescine accumulation; *Aeromonas sobria* could produce cadaverine and putrescine.

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