On halophilic non-sporeforming anaerobic Gram negative rods in sea fish and shellfishes

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Summary

Holophilic non-sporeforming anaerobic Gram negative rods are acommonly found sea fish and shellfishes bacteria that is associated with the sea fish and shellfishes. An assay to detect halophilic non-soporeforming anaerobic Gram negative rods in sea fish and shellfishes(Tapes japonica, Meretrix lusoria, Crass ostrea gigas, Babyronia japonica, Iefteye flounder, Pandalus borcalis, Metapenaeus joyneri, Sardinops melanosticta) that uses a enrichment culture with 2% NaCl and simple plate agar with 2% NaCl culture isolation procedure was stau- died. By the enrichment culture method, halophilic non-sporeforming anaerobic Gram negative rods were detected in 50.8% of the sea fish and shellfishes. Ninety percent in Crassostrea gigas, 60% in Meretrix lusoria, 55.5% in Tapes japonica and 0% in Sardinops melanosticta were detected. Detection rate of halophilic non-sporeforming anaerobic Gram negative rods from shellfishes in winter season gave higher than in summer season was observed($P<0.001$ and $P< 0.029$). Concentration of halophilic non-sporeforming anaerobic Gram negative rods in shellfishes detected 4.3×10^{3}～18.8×10^{3}cfu/g. in winter season.

Three new species of Halophilic anaerobic non-sporeforming Gram negative-rod, Haloanaerobium psychrophillum, Haloanaerobium longum and Haloanaerobium butyricum are described. We compared 45 strains of halophilic anaerobic non-sporeforming Gram negative rods isolated from the sea shellfish with DMS 22 28 strain of Haloanaerobium praevalens (Type strain of genus Haloanaerobium). all of these strains were obligate anaerobic Gram negative, non-sporeforming bacteria which proliferated optimally at approximately 2 ~ 3% or ≧ 5% salt. These organisms pos-sessed single outer-wall membranous layer. DNA base composition was 26.9 ～33.2 mol % guanosine plus cytosine. Strain of these isolates have negligibleDNA homology with DMS 2228 strain of H. praevalens described previously. Acetic acid, butyric acid and propionic acid were the major glucose fermentation end products formed. Glucose, fructose, insitol, ribose, maltose and mannose were fermented. A number of additional biochemical and physiological tests were performed. On the basis of those characteristics, isolates were identified as new Haloanaerobium species (H. psychrophillum, H. butyricum and H. longum).