Occurrence of biogenic amines and amines degrading bacteria in fish sauce.

Abstract

The contents of biogenic amines histamine, putrescine, and cadaverine in fish sauce were determined and the bacteria isolated from the samples were evaluated for their amines degradation activity. Five fish sauce samples contained 62.5–393.3 ppm of histamine, 5.6–242.8 ppm of putrescine, and 187.1–704.7 ppm of cadaverine. Thirty three bacterial isolates produced all three amines, seven isolates produced one or two amines, and one isolate did not produce any amine in differential agar media. Since the strains that produced amines were not supposed to degrade them, only eight isolates were further identified and evaluated for their amines degrading capability. Bacillus amyloliquefaciens FS-05 and Staphylococcus carnosus FS-19 degraded histamine up to 59.9% and 29.1% from its initial concentration, respectively. Staphylococcus intermedius FS-20 and Bacillus subtilis FS-12 degraded putrescine and cadaverine up to 30.4% and 28.9%, respectively. Most isolates tolerated the salt concentration of up to 15% and temperature of up to 45°C.The current study provided new information on biogenic amines degrading bacteria, isolated from high-salt-content food products. The amines degradation activity of the bacteria is considered as strain rather than species specific.

Keyword: Fish sauce; Biogenic amines; Amines degradation; Bacillus amyloliquefaciens; Staphylococcus carnosus.