



Quality safety and nutritional quality of Zhikong Scallop, *Chlamys farreri* in Shandong Coastal Area of China

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Scallops are one of the important marine shellfish and the earliest mariculture species in China. Scallops are widely distributed along the coast of China, the aquaculture production of scallops has expanded rapidly in recent decades.

Shandong is the largest production area for scallops as its yield is up to 983,957 tons, while the production area in Shandong is 120,627 hectares (NCPRC, 2022). We examined the quality and safety profiles of scallop *Chlamys farreri*, which were collected from 10 different regions in the Shandong peninsula, and then, the nutrient components, including proximate, amino acids, fatty acids, mineral elements, and vitamins, as well as primary biological and chemical hazards, such as banned antibiotics, organic pollutants, heavy metal, shellfish toxins, and pathogenic bacteria in *C. farreri* were analyzed.

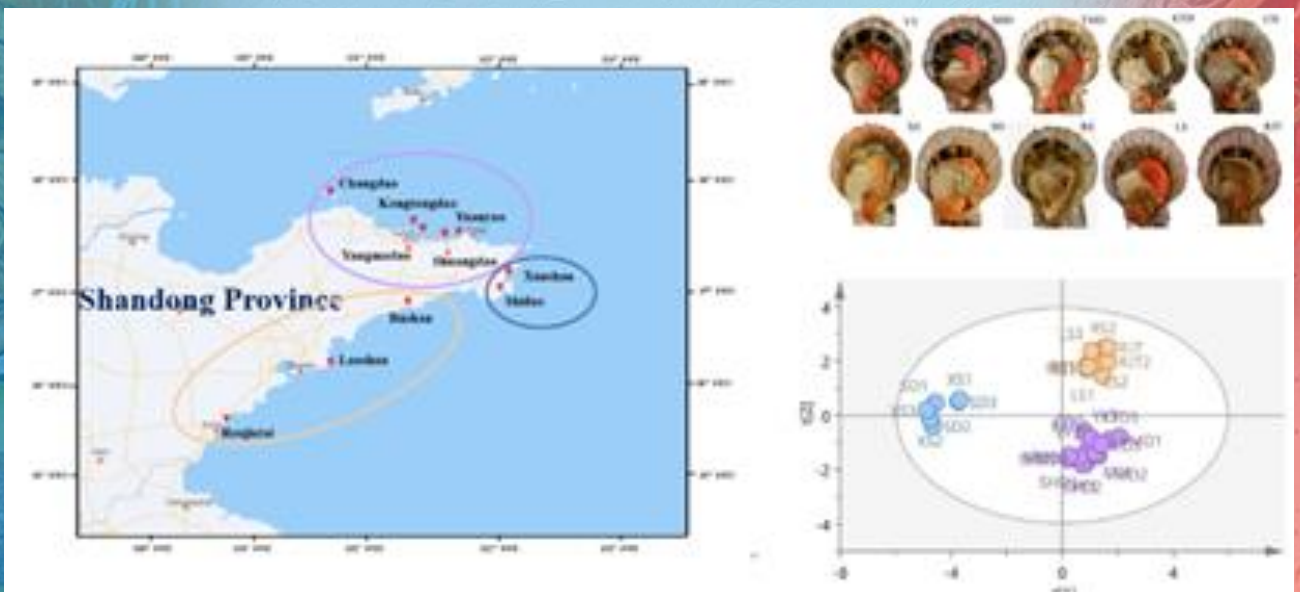


Fig. 1 Sample site and PCA analysis of *C. farreri*.



A comprehensive evaluation method was established to ascertain major nutrient quality characteristics, including amino acid score, fatty acid score, taste activity value, equivalent umami concentration, nutrient index, and principal component score. Feature indicators were comprehensively evaluated using correlation analysis, system cluster analysis, orthogonal partial least squares discriminant analysis, and factor analysis.

The factor analysis result shows that Xunshan > Laoshan > Changdao > Kongtongdao > Yangmadao > Yuanyao > Rushan > Shidao > Shuangdao > Renjiatai.

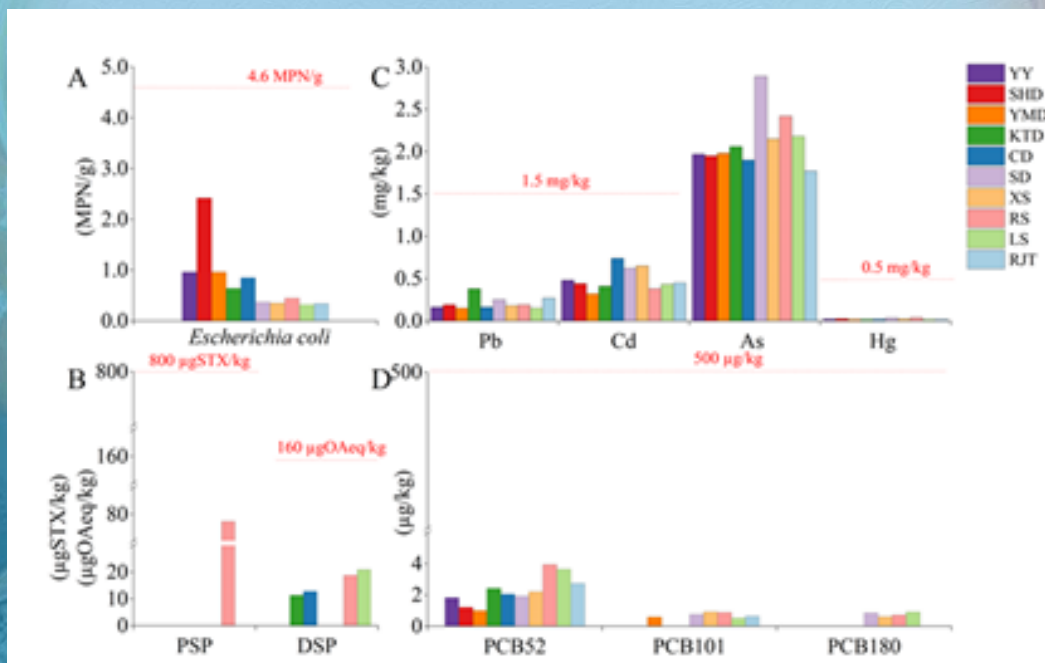


Fig. 2 Microbial and Chemical hazards concentrations of *C. farreri* from different regions