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Staphylococcal population in lanhouin: potential indigenous starter?

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Lanhouin is a traditional fermented fish mainly processed in the coastal zones of Benin. Its production is still artisanal, and two mainly fermentation conditions, aerobic and semi aerobic were observed during the processing of fresh fish into Lanhouin. The aim of this work was to investigate the *staphylococcal* population during the two types of fermentation. In this respect the coagulase negative bacteria (CNS) were enumerated along the two fermentation processes. A total of 121 CNS were isolated from the fermenting fish samples and identified either by a PCR multiplex or a Staph Array. The results showed that the CNS reached approximately 4 Log CFU/g after 3 days of fermentation and stayed at this level up to the end of the process. 112 isolates were identified as belonging to genus *Staphylococcus*. The identification to species level lead to five species including *S. nepalensis*, *S. sciuri*, *S. cohnii subsp. cohnii*, *S. saprophyticus* and *S. epidermidis*. *S. nepalensis* (47%) was the predominant species in Lanhouin, followed equally by *S. sciuri* (22%) and *S. cohnii subsp. cohnii* (21%). *S. nepalensis* and *S. cohnii* were isolated along the two types of fermentations attesting that they are well adapted to these processes, while *S. sciuri* was only isolated from the semi-aerobic fermentation and disappeared as the fermentation time progressed. The dominance of *S. nepalensis* and its presence along the process questioned its development as indigenous starter cultures. This species has been isolated from fish sauce and it was able to improve its odour. Furthermore, safety criteria investigated on a collection of 15 strains revealed the absence of genes coding enterotoxins SEA to SEI and enterotoxin -like SEJ, the absence of DNase activity and *nuc* gene coding nuclease and haemolytic activity, but resistance either to tetracycline or erythromycin was noted. These criteria are indispensable to develop safe indigenous starter cultures.

Biography

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