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Traditional fermented fish harbors bacteria with potent probiotic and anticancer properties

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ABSTRACT

Utonga-kupsu is a fermented fish product produced by the indigenous Manipuri people (Meetei) living in the North-Eastern part of India. The aim of the present study was to isolate, identify and characterize the probiotic bacteria present in these fermented food using tolerance test; antimicrobial activity; and anticancer activity. Six potential probiotic bacterial strains were identified belonging to *Staphylococcus piscifermentans*, *S. condimenti*, *S. carnosus* and unknown *Staphylococcus*. The isolates UK12 and UK3, identified as *S. piscifermentans* and *Staphylococcus* spp. possessed highest tolerance to gastric juice, bile salts and phenol whereas UK2, UK10, UK12, UK20, and UK25 possessed good antimicrobial activity against the three bacterial pathogens tested. The crude protein of the three isolates UK3, UK10 and UK12 showed high cytotoxic activity against cancer cell lines (HeLa and HT-29) but no activity against normal lung cell L-132. Presence of such type of microorganisms might be responsible for the possible potential source of probiotics in this fermented food.

Keywords: Probiotics, fermented fish, antimicrobial, co-aggregation, anticancer and 16s rRNA.

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