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Anti-proliferative bacteriocins active against MRSA from coagulase negative *Ent. Mundtii* strain C4L10 isolated from non-broiler chicken

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Bacteriocins produced by a variety of microbes are gaining more attention for not only as alternative food preservative but also as therapeutic agent. A bacteriocin, Ent C4L10, was produced by coagulase negative *Enterococcus mundtii* strain C4L10 (Accession No. KC731423) previously isolated from Malaysian non-broiler chicken. Based on agar diffusion assay, it showed antimicrobial activities against Methicillin resistance *Staphylococcus aureus* (MRSA) used as an indicator organism. Approximately 10 kDa protein was purified employing three-phase partitioning (TPP) method and it was shown to be highly thermostable, retaining activities at 121°C for 15 min, and was stable in a pH range of 4-9. There was however a loss in activity after protease treatment. PCR amplification using enterocin gene primers showed that Ent C4L10 sequence is highly similar to bacteriocin L-1077 (83% identity). In order to study its anti-proliferative potential, purified Ent C4L10 was also tested against four human cell lines; i.e., lung cancer (H1299), breast cancer (MCF 7), colon cancer (HCT116) and oral cancer (HSC3). It was found that oral cancer cell line was the most sensitive with a cytotoxic index of IC₅₀ of 9.009 µg/ml, followed by breast cancer IC₅₀ (11.51 µg/ml), and the least sensitive was with colon cancer cell line (IC₅₀ of 20.57 µg/ml). In conclusion, putative 10 kDa Ent C4L10 is a class II bacteriocin isolated from coagulase negative *Enterococcus mundtii* strain C4L10 shown to have anti-proliferative properties. Therefore, this bacteriocin has not only great potential for use in food preservation, its future use as an antitumor agent should also be explored.

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