

Title PEPTONE PRODUCTION FROM FISH WASTE BY PROTEOLYTIC BACTERIA FOR USE AS MICROBIAL GROWTH MEDIA

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ABSTRACT

The objective of this research was to evaluate the most efficient proteolytic bacteria for protease production. *Bacillus cereus* TISTR 687 and *Bacillus subtilis* TISTR 008 were screened by determination the diameter of a clear zone on the selective medium (skim milk agar) surface. The largest clear zone was observed when *B. subtilis* TISTR 008 grew on skim milk agar at pH 7.5, 45°C. Subsequently, *B. subtilis* TISTR 008 was used for digestion of red tilapia viscera to used as peptone. The suitable conditions for the production of hydrolysis enzyme from *B. subtilis* TISTR 008 were at 45°C, initial pH 7.5 for 6 hours the degree of hydrolysis of 67.58 and the soluble protein content of the hydrolyzate was 2.52 mg/ml. After freeze drying, the final yield was 7.75%. The proximate composition analysis showed that the percentage of total nitrogen, lipid, ash and moisture content were 84.69, 1.71, 3.66 and 9.31, respectively. The obtained peptone compose of 18 essential amino acids and could be utilized as microbial growth media. The 3 types of bacteria (*Bacillus subtilis* TISTR 008, *Escherichia coli* ATCC 25922 and *Staphylococcus aureus* TISTR 118) were grown in the red tilapia peptone in comparison with the commercial peptone. The results indicated that the red tilapia peptone demonstrated better growth promotion than that of the commercial peptone.

Keywords: peptone, *Bacillus* sp., protease, fish waste, microbial growth media