THE INFLUENCE OF MOLECULAR WEIGHT, AND SULFUR CONCENT ON THE SOLUBILITY AND ANTIMICROBIAL ACTIVITY OF SULFOBENZOIC CHITO

王祖善、陳齊聖

E-mail: 9015659@mail.dyu.edu.tw

ABSTRACT

CHITIN DERIVED FROM SHRIMP SHELL WAS USED TO PREPARE SULFOBENZOIC CHITOSAN (SBC) WHICH HAS WATER SOLUBILITY AND ANTIMICROBIC ACTIVITY. THE ANTIMICROBIAL ACTIVITY OF SBC, AGAINST FOOD BORN PATHOGENS, AND AGUEOUS SOIUBILITY WERE AFFECTED BY THE MOLECULES' DEGREE OF DEACETYLATION (DD%)、 MOLECULAR WEIGHT (MW) AND SUIFUR CONTENT. SBC OF HIGHER DD (DD80 AND DD90) SHOWED HIGHER INHIBITORY ACTIVITY AGAINST ESCHERICHIA COLI THAN SBC-DD73. ON THE OTHER HAND, SBC OF DD73 DEMONSTRATED HIGHER ANTIMICROBIAL ACTIVITY AGAINST STAPHYLOCOCCUS AUREUS, AS COMPARED TO DD80 AND DD90. SBC OF DD73 WAS FOUND TO HAVE HIGHEST AQUEOUS SOLUBILITY AMONG 4 SAMPLES OF DIFFERENT DD%. THIS RESEARCH USED ENZYME (FUNGAL PROTEASE, BROMELAIN) AND OXIDIZING AGENT (H2O2, NACLO) TO DEGRADE CHITOSAN MOLECULAR. VISCOSITY OF CHITOSAN SOLUTION WAS USED TO DETERMINE MW. CHITOSAN OF HIGH (1000,000), MEDIUM (500,000) AND LOW (20,000) MW WERE USED TO PREPARE SBC, AND THEIR ANTIMICROBIAL ACTIVITIES WERE COMPARED. SBC OF MW500,000 SHOWED HIGHEST ANTIMICROBIAL ACTIVITY AMONG THE THREE, WHILE, THE OTHER TWO SHOWED NO SIGNIFICANT DIFFERENCE IN THIS RESPECT.

Keywords : CHITIN, CHITOSAN, SULFOBENZOIC CHITOSAN, DEGREE OF DEACETYLATION, MOLECULAR WEIGHT, ANTIMICROBIAL ACTIVITY, SOLUBITITY

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