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**GENOTOXICITY AND CYTOTOXICITY EVALUATION OF SEA CUCUMBER (*Stichopus horrens*)  
PROTEIN HYDROLYSATES**

OBREN JAMES KAWANDING, NORIHAM ABDULLAH, ZAINON MOHD NOOR, NOORAIN HASHIM, NAZAMID SAARI, MOHD FAKHARUL ZAMAN RAJA YAHYA AND MOHD FAIZ FOONG ABDULLAH

School of Biological Sciences, Faculty of Applied Sciences, Universiti Teknologi MARA (UiTM), Shah Alam, 40450 Selangor Darul Ehsan

Email: obren\_123@yahoo.com

**ABSTRACT**

Sea cucumber (*Stichopus horrens*) protein hydrolysates were known as a potential functional food source with angiotensin-converting enzyme (ACE) inhibitory. The genotoxicity properties of *S. horrens* protein hydrolysates have been investigated through two different *in vitro* tests: Ames test and *in vitro* micronucleus test while the cytotoxicity properties of *S. horrens* protein hydrolysate were assessed using neutral red test. The study was conducted at a concentration up to 8000 µg/ml, 80 µg/ml and 50 µg/ml for Ames test, *in vitro* micronucleus test and neutral red test respectively with and without metabolic activation. There were no increments in the number of revertant colonies observed at any concentrations of *S. horrens* protein hydrolysates with and without metabolic activation in all four strains of *Salmonella typhimurium* (TA98, TA100, TA1535 and TA1537) compared to the solvent control. In *in vitro* micronucleus test, *S. horrens* protein hydrolysate did not induce clastogenicity in V79 cell while in neutral red test, *S. horrens* protein hydrolysate did not show any cytotoxic effects on NIH/3T3 mouse fibroblast cell.

In conclusion, *S. horrens* protein hydrolysates are safe in terms of genotoxic and cytotoxic hence have the potential to be used in pharmaceutical and food industries as functional ingredient.

Keywords: Sea cucumber (*Stichopus horrens*), protein hydrolysates, genotoxicity, cytotoxicity