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Immunosuppressive and anti cancer activity of a novel Sri Lanka marine sponge, *Haliclona (Soestella)* species

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Marine sponge extracts are increasingly utilized as immunosuppressive and anticancer therapeutic agents. This study aimed to investigate the immunosuppressive activity and cytotoxicity of presumably a novel Sri Lankan sponge species, *Haliclona (Soestella)* sp., the crude sponge extract (HSCE) and its purified fractions were tested for these activities by the MTT dye reduction assay on Wistar rat bone marrow cells (BMCs) and on the Hep-2 human larynx carcinoma cell line, respectively. Sponge samples were harvested from Unawatuna, Galle, Sri Lanka by scuba diving and refluxed thoroughly with methanol/dichlorommethane, followed by filtration and rota evaporation. The resultant HSCE was subjected to solvent-solvent partitioning with chloroform, ethyl acetate, hexane and water. The HSCE and its fractions (10, 100, 1000, 2000 and 5000 µg/mL) were tested ex vivo on BMC proliferation by the MTT assay. Cytotoxicity of the HSCE and its chloroform fraction (CF) were tested at 6.25, 12.5, 25, 50 and 100 µg/mL on the Hep-2 cell line. BMC proliferation evidenced dose dependant percentage inhibition by the HSCE with significant proliferation inhibition observed in 1000 and 2000 µg/mL concentrations ($P<0.05$; IC_{50}- 0.719 µg/mL for 2000 µg/mL dose). Highest (100%) inhibition was exhibited by the CF followed by the ethyl acetate fraction (60-70% inhibition) with no inhibition by water and hexane fractions. Cytotoxicity of HSCE and CF on Hep-2 cells reported EC_{50} values of 19.7 and 29.7 µg per mL, respectively. In conclusion, the HSCE and its fractions were immunosuppressive with respect to BMC proliferation, while HSCE and CF showed cytotoxicity against human larynx carcinoma cells.

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