Immunomodulatory activity of purified sulphated polysaccharides (ST-DFII) from S*argassum t*e*nerrimum* on cyclophosphamide treated immunosuppressed rats

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Sulphated polysaccharides were extracted from *Sargassum tenerrimum* and purified using DEAE-sepharose anion exchange chromatography which yielded three fractions (ST-DFI, ST-DFII and ST-DFIII). Amongst the purified fractions, ST-DFII fraction was obtained at a higher concentration and possessed anticoagulant and antioxidant activity. Hence, ST DFII was further evaluated for immunomodulation activity on cyclophosphamide treated immunosuppressed rats. The cyclophosphamide (CYP) treated group impaired the level of hematological parameters, cell mediated immune responses and macrophage production. Moreover, CYP reduced the level of enzymatic and non-enzymatic antioxidant status of the organs and promoted macromolecular damage. Administration of ST DFII (25mg/kg b.w.) helped in the recovery of the reduced level of hematological parameters, restoration of the organ weight index, enzymatic and non-enzymatic oxidant status of CYP treated animals to the level of normal control group. The CYP treatment generated oxidative stress leading to elevated levels of damaged macromolecules (MDA and carbonyl proteins). The elevated levels of damaged macromolecule were decreased to the level of normal control group at the concentration of 25 (mg/kg b.w.). Although the observed results were achieved at a concentration of 25 mg/kg b.w of STD FII , The impaired cell mediated responses and macrophage production was repaired by 10 (mg/kg b.w) ST DFII concentration. The histopathological analysis also proved that CYP induced damage was repaired by ST DFII in a dose dependent manner. The results of this study indicated that ST DFII from *S. tenerrimum* could be explored as a promising nutraceutical molecule with good anticoagulant, antioxidant and immunomodulatory activity.

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