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Analysis of immunomodulatory activity of polysaccharides extracted from the brown alga *Cystoseira myrica*

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Background and Aims: Many polysaccharides, isolated from algae recently have attracted more attention in the biochemical and medical areas due to their immunomodulatory and anti-cancer effects. The present study was designed to explore the effect of polysaccharides extracted from Cystoseira myrica, an alga from Persian Gulf.
Methods: Polysaccharides were extracted from the milled seaweeds using selective solvents, namely ethanol 85% (v/v), CaCl2 2% , HCl 0.01M and Na2CO3 3% (w/v) then, were dialyzed during 48 h and freeze-dried. Immunomodulatory study was performed on human peripheral blood mononuclear cells (PBMC) in presence of different concentrations of the polysaccharides (0-1000µg/ml) then cell viability was determined by using a colorimetric technique, WST-1based. PHA was used as positive control for Lymphocytes activation. Finally, the absorbance was read at 450 nm and reference wavelength at 630 nm by using µ Quant ELISA Reader.
Results: The seaweeds were treated with selective solvents to extract laminarans and fucoidans in mixture (fraction A: by Cacl2), fucoidans (fraction B: by HCl), and alginates (fraction C: by Na2CO3). Extract concentrations ranging between 50-1000µg/ml of fraction A, 100-1000µg/ml of fraction B, 500-1000µg/ml of fraction C showed the significant effects of inhibiting proliferation of human PBMC ($P < 0.05$).
Conclusions: This work shows that polysaccharide extracts of marine alga, Cystoseira myrica are able to inhibit the proliferation of human PBMC from normal controls, indicating an immunosuppressive activity.

Keywords: *Cystoseira myrica*; Polysaccharide; Immunomodulator