**Immunomodulatory activities of non-degraded and degraded funoran extracted from** ***Gloiopeltis furcata***

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Funoran is sulfated polysaccharide mainly use as a household adhesive, a sizing agent in the textile and paper manufacturing industries, thickener for mortar and widely popular as a paste for pottery, handicraft and stationary. Recently, funoran has drawn attention of food industries due to its approval as a safe food thickener and various bioactivities. Despite the health benefits there are not much studies done regarding the immunomodulatory activities of funoran. This study focused on the anti-inflammatory actives of non-degraded and degraded funoran extracted from *Gloiopeltis furcata* on RAW 264.7 murine macrophage cell line. Funoran was hydrolyzed by autohydrolysis process and molecular weight of degraded and non-degraded funoran were determined by High performance size-exclusion chromatography (HP-SEC). FRAP, SOD, ABST, DPPH and OH assays were performed to determine the antioxidant activity. Anticoagulant activity of funoran dropped after degradation. To determine cell cytotoxicity of non-degraded and degraded funoran, MTT assay was performed. NO production assay was performed by stimulating RAW 264.7 using LPS. Macrophage cells treated with non-degraded and degraded funoran showed significant reduction of NO production compared to LPS treated cells. Higher and lower molecular weight of funoran exhibited significantly higher inhibition of pro-inflammatory genes and proteins, including IL-1β, IL-6, and TNF-α, compared with only LPS treated one. Western blotting analysis revealed that the MAPK and NF-κB signalings were highly inhibited by funoran treatment. The current study is the first to exhibit the anti-inflammatory activities of non-degraded and degraded funoran which implicates that funoran can be used as potential therapeutic agent in pharmaceutical industries.

References

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