
EXTRACTION OF POLYSACCHARIDES FROM THE UPSIDE-DOWN JELLYFISH CASSIOPEA ANDROMEDA AND EVALUATION OF THEIR IMMUNOSTIMULATORY PROPERTIES IN VITRO

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Abstract

The jellyfish *Cassiopea andromeda* (Forsskål, 1775) is a Lessepsian migrant species now established in the Mediterranean. Because jellyfish-derived polysaccharides are gaining attention for their potential bioactive properties (1), this study focuses on polysaccharides isolation and purification of *C. andromeda* to evaluate their antioxidant properties and immunostimulatory activity. Extraction was performed from the umbrella using alcohol precipitation, followed by purification with DEAE Sepharose Fast Flow chromatography, obtaining an acidic and a neutral fraction (2).

The total yield of crude extract was 5.13 mg/g dry weight, with a protein content lower than 1 μ g. Antioxidant activity, assessed through the DPPH assay, revealed that the acidic fraction exhibited 37.8% activity, whereas the neutral fraction showed no effect. Immunostimulatory potential was evaluated on RAW 264.7 macrophages, analyzing the nitrite production and expression of inflammation-related genes (iNOS, COX-2, TNF) via qPCR. Both fractions induced gene expression in a concentration-dependent manner; however, the acidic fraction displayed a tenfold higher activity than the neutral one (Fig.1).

These findings suggest that *C. andromeda*-derived polysaccharides, particularly the acidic fraction, possess significant immunomodulatory properties, highlighting their potential application as natural bioactive compounds in pharmaceutical and nutraceutical fields.

References

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