

# Isolation And Structural Characteristic Of Novel Gangliosides From *Temnopleuridae* Echinoid Gonads With Investigation On Their Mouth And Breast Anticancer Properties †

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**Abstract:** Sea urchins have recently been attracting considerable research interest as sources of a number of highly valuable bioactive compounds that possess antitumor, antiviral, antimicrobial and anticoagulant properties that hold great promise for use in pharmacological applications. The present study was carried out to determine the structural, developmental characterization of gangliosides isolated from the *Temnopleuridae*. The extraction of lipids carried out by the chloroform-methanol extraction methods. The structural identification of *Temnopleuridae* extracts determined by TLC, GC-MS, FT-IR, and NMR studies. The antimicrobial and antifungal activity of the *Temnopleuridae* extract against the various clinical pathogens were analyzed. Then the *in-vitro* studies were carried out in HELA cells. In the experimental results, a significant amount of lipids were extracted from the gonads of *Temnopleurida*. The presence of polyunsaturated fatty acids and enriched phospholipid profile were identified. The clinical pathogens such as *Clostridium*, *Staphylococcus*, *Vibrio* species, *Candida*, *Aspergillus*, and *mucormycets* showed a potential zone of inhibition during the disc diffusion method. The cytotoxicity assay showed an increase in cell viability against the cytotoxicity in HELA cells. Based on the consideration of the high level of polyunsaturated fatty acids and enriched phospholipids, *Temnopleurida* gonads offer novel therapeutic compounds for the mouth and breast cancer.

**Keywords:** *Temnopleurida*; Sea urchin; anticancer activity; antimicrobial activity.

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## Conflicts of Interest

The authors declare no conflict of interest.