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Physicochemical, antioxidant and biocompatible properties of chondroitin sulphate isolated from chicken keel bone for potential biomedical applications

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Highlights

- CS-Keel was isolated from chicken keel bone cartilage.
- Surface analysis of CS-Keel showed the layered structure with regular depressions.
- CS-Keel showed thermostability with a T_d of 243°C.
- MTT assay and microscopic observations revealed biocompatibility of CS-Keel.
- CS-Keel showed strong antioxidant and emulsifying properties.

Abstract

Chicken keel bone cartilage was explored for cheaper and sustainable source for isolation of chondroitin sulfate (CS) for its future use in tissue engineering and pharmaceutical industry. HPSEC analysis displayed two peaks of 100 kDa for CS-Keel polysaccharide and 1 kDa for protein. DLS analysis of CS-Keel displayed polydispersity. CS-Keel yield was 15% and 53±5% uronic acid content. The quantified percentages of UA-GalNAc4S and UA-GalNAc6S disaccharide in CS-Keel were 58 % and 42 %, respectively. FT-IR identified CS-Keel to be chondroitin 4-sulphate. ¹H-NMR of CS-Keel confirmed the presence of N-acetylgalactosamine and Glucuronic acid. FESEM demonstrated layer

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