

Anti-inflammatory effect of chitosan oligomers

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Chitosan has been used as source of potential bioactive material in the past few decades. However, in the biomedical field, chitoooligosaccharides (COS) are more applicable due to their water solubility and higher absorption profiles at intestinal level — quickly getting into the blood flow and having systemic biological effects in the organism. To explore the anti-inflammatory activities of COS, we tested two COS mixtures (obtained via enzymatic, with molecular weight <3 and <5 kDa) at several concentrations, by carrageenan-induced paw edema methodology, in mice. The inflammatory response was quantified by increase in paw size (edema) which is maximal around five-hour postcarrageenan injection, and is modulated by inhibitors of specific molecules within the inflammatory cascade. COS showed anti-inflammatory action, which increased with the molecular weight. COS<5 kDa even showed higher effect than the control, indomethacin, after two hours, with no harmful secondary effects.

Our data suggest that COS possesses anti-inflammatory effect, dose and MW-dependent.