

## **Prebiotic attribute of chitin oligosaccharides derived from sea food waste**

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**Introduction:** Biodegradation of sea food waste leads to the formation of various value-added products such as chitin oligosaccharides (COS). *Paenibacillus* sp. AD has been reported to produce chitin oligosaccharides after degradation of sea food waste. Conditions were optimized for the degradation of sea food waste in solid state and concomitant production of COS. Prebiotic potential of COS was evaluated by in vitro fermentation of oligosaccharides with various intestinal microorganisms.

**Methods:** Chitin oligosaccharides were analysed in terms of degree of polymerization, molecular weight and degree of acetylation using various techniques. Furthermore, prebiotic potential of Chitin oligosaccharides of various degree of polymerization was evaluated by in vitro fermentation of chitin oligosaccharides with various intestinal microorganisms.

**Results:** COS was found to have beneficial effect on the growth of various *Lactobacillus* sp. and also limit the growth of various enteric pathogens, therefore having huge potential as prebiotic agents.

**Discussion:** Current research revolutionizes the production and availability of prebiotic chitin oligosaccharides as this is the study in which COS were produced directly from solid state fermentation of sea food waste. This is the economical and eco-friendly method in which chemical and enzymatic production of COS are not required. Moreover, this study shows prebiotic potential of N-acetylated glucosamine oligosaccharides by their in-vitro fermentation with various intestinal microorganisms.