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Abstract

Structure, Properties and Biological Activity of Chitosan Salts with L- and D-Aspartic Acid †

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Abstract: A comprehensive study of the structure, properties and biological functionality of salt chitosan complexes with L- and D-aspartic acid (AspA) was carried out. It has been established that these polymer salts differ in their spatial organization, chirooptic characteristics, surface charge and macrocoil size. In experiments in vitro on a wide range of biological objects (unicellular algae, planktonic crustaceans, aerobic bacterial microorganisms, cell cultures and test plants), it was found that the chitosan salt with D-AspA exhibited the best biological activity. The results obtained confirm our hypothesis that the biological homochiral hierarchy principles are most consistent with the chitosan (D-aminoglycan) derivatives with the D-antipode of the acid.

Keywords: chitosan; aspartic acid; enantiomers; salt formation; chirooptic properties; biological activity

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