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Authors: Tomáš Bobula, Radovan Buffa, Martina Hermannová, Hana Vágnerová, Iva Dolečková, Vladimír Velebný

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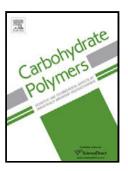
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The synthesis of a new unsaturated derivative of chondroitin sulfate with

increased antioxidant properties

Tomáš Bobula*, Radovan Buffa, Martina Hermannová, Hana Vágnerová, Iva

Dolečková and Vladimír Velebný.

Contipro a.s., Dolní Dobrouč 401, 56102, Czech Republic

Highlights

Efficient and regio-specific modification of CS was developed.

A new unsaturated derivative of CS (Δ CS) was synthetized.

The double bonds increased chemical reactivity of Δ CS towards free-radicals.

 Δ CS is a biocompatible material suitable for biomedical and cosmetic applications.

Abstract

Chondroitin sulfate (CS) was regio-specifically modified to an unsaturated derivative

(Δ CS) with a double bond in positions 4 and 5 of *N*-acetyl-D-galactosamine. The

structure of Δ CS was elucidated in detail by two dimensional nuclear magnetic

resonance, ultraviolet spectroscopy and mass spectrometry. The introduction of a

nucleophilic –C=C– double bond into a polymer backbone had no influence on

biocompatibility of CS, which was demonstrated by MTT live-dead assay and

enzymatic degradation in vitro. On the other hand the chemical modification

*Corresponding author. Tel.: +420 465 519 587; Fax: +420 465 543 793

E-mail address: bobula@contipro.com

1

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