

Accepted Manuscript

Title: Production of heparin and λ -carrageenan anti-heparanase derivatives using a combination of physicochemical depolymerization and glycol splitting

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PII: S0144-8617(17)30160-1
DOI: <http://dx.doi.org/doi:10.1016/j.carbpol.2017.02.040>
Reference: CARP 12019

To appear in:

Received date: 9-10-2016
Revised date: 23-1-2017
Accepted date: 12-2-2017

Please cite this article as: {<http://dx.doi.org/>

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4

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17 **Highlights**

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- 19 - Ultrasonic-assisted radical depolymerization gave LMW- λ -Carrageenan
20 - Depolymerization associated with glycol splitting helped modulate biological
21 activities
22 - Lead to interesting heparanase inhibitors with low-anticoagulant properties.
23 - RD-GS- λ -Carrageenan most interesting candidate as potent antiangiogenic.
24 - Same heparanase inhibition as UF-heparin but with no anticoagulant properties.
25

26 **Keywords:** Heparin, Carrageenan, heparanase, Glycol split, angiogenesis, depolymerization

Abbreviations :

Low Molecular Weight, LMW; Heparan Sulfate, HS; Extracellular matrix, ECM;
Unfractionated, UF; depolymerized with radical hydrolysis assisted by ultrasound, RD
Hexuronic Acid, HexA; Glycol split, GS; depolymerized then glycol splitted, RD-GS; Glycol
splitted then depolymerized, GS-RD; Number average molecular weight, Mn; Weight average
molecular weight, Mw; Human Skin MicroEndothelial Cells, HsKMEC.

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