

## Accepted Manuscript

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PII: S0144-8617(18)30184-X  
DOI: <https://doi.org/10.1016/j.carbpol.2018.02.036>  
Reference: CARP 13298

To appear in:

Received date: 1-1-2018  
Revised date: 8-2-2018  
Accepted date: 11-2-2018

Please cite this article as: Chen, Yajie., Jiang, Xue., Xie, Hongqing., Li, Xiaotong., & Shi, Liangen., Structural characterization and antitumor activity of a polysaccharide from ramulus mori. *Carbohydrate Polymers* <https://doi.org/10.1016/j.carbpol.2018.02.036>

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# Structural characterization and antitumor activity of a polysaccharide from ramulus mori

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## Highlights:

- Polysaccharide RMP1 was isolated from ramulus mori.
- Composition and structure of RMP1 was elucidated.
- RMP1 showed antitumor effect *in vitro*.
- RMP1 could induce cell apoptosis and cell cycle arrest.
- RMP1 has good potential as a novel antitumor agent.

## ABSTRACT

This study investigated the chemical characterization and antitumor effects of a polysaccharide from ramulus mori. A water-soluble polysaccharide, RMP1 with the estimated molecular weight of 137 kDa, was isolated and purified from ramulus mori through gel permeation chromatography.

RMP1 is mainly composed of arabinose, xylose, glucose, galactose and rhamnose in a ratio of 0.56:0.37:0.17:1.00:0.08. Methylation and NMR analysis revealed that RMP1 had a backbone composed of 1,6- $\beta$ -D-Galp, 1,3,6- $\beta$ -D-Galp and 1,3- $\beta$ -D-Galp residues, two main branches of 1,2- $\alpha$ -L-Araf, 1,3,6- $\beta$ -D-Galp and 1,4- $\beta$ -D-Xylp; it also had  $\alpha$ -L-Araf and  $\beta$ -D-Glcp as terminals.

In the MTT assay, RMP1 showed significant anticancer effects against the SGC-7901 and HeLa

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