

Title	Plant mucilages. XLII. an anti-complementary mucilage from the leaves of malva sylvestris var. mauritiana
Sub Title	
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Publisher	共立薬科大学
Publication year	1989
Jtitle	共立薬科大学研究年報 (The annual report of the Kyoritsu College of Pharmacy). No.34 (1989.) ,p.60- 60
JaLC DOI	
Abstract	
Notes	抄録
Genre	Technical Report
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AN00062898-00000034-0060

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Plant Mucilages. XLII. An Anti-Complementary Mucilage from the Leaves of *Malva sylvestris* var. *mauritiana**

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A mucilage, designated as MSL-M, was isolated from the leaves of *Malva sylvestris* var. *mauritiana* by extraction with cold water followed by fractionation of DEAE-Sephadex A-25 (carbonate) and purification by successive gel chromatography on Sephacryl S-300, Toyopearl HW-75F and Sephadex G-25 columns. The mucilage gave a single peak on gel chromatography and gave a single band on PAGE.

MSL-M contains 94.4% polysaccharide and 5.0% peptide moiety. The polysaccharide is composed of L-rhamnose : D-galactose : D-galacturonic acid : D-glucuronic acid in the molar ratio of 6 : 3 : 2 : 2. Its intrinsic viscosity value in aqueous solution was 12.0, and the value of molecular mass was estimated to be about 6.0×10^6 .

The results of methylation analysis of MSL-M and the carboxyl-reduced derivative and ^{13}C -NMR spectrum suggested that the minimal unit of the polysaccharide moiety is composed of five α -1,2-linked L-rhamnose, one 2,4-branched α -L-rhamnose, one terminal β -D-galactose, two β -1,4-linked D-galactose, two 3,4-branched α -D-galacturonic acid and two terminal β -D-glucuronic acid residues.

Partial hydrolysis of MSL-M followed by fractionation on DEAE-Sephadex A-25 (formate) column afforded four known oligosaccharides. Based on the accumulated evidence, it can be concluded that the polysaccharide moiety contains two units, $(1 \rightarrow 4)\text{-}[\beta\text{-D-Glc}\alpha\text{A-(1} \rightarrow 3)\text{-}\alpha\text{-D-Gal}\beta\text{A-(1} \rightarrow 2)\text{-}\alpha\text{-L-Rha}\beta]$ and α -1,2-linked α -L-Rha β , in a ratio of 1 : 2 as the backbone, and that one-sixth of the rhamnose residues in the backbone carries side chains composed of β -1,4-linked D-galactopyranose units at position 4.

MSL-M showed potent anti-complementary activity compared with the positive control, AR-4, from the root of *Angelica acutiloba*. The highly branched structure could be involved in the activity.

* 本報告は *Chem. Pharm. Bull.*, 37, 3029—3032 (1989) に発表。

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