Title	Reticuloendothelial system-potentiating and alkaline phosphatase-inducing activities of plantago-mucilage A, the main mucilage from the seed of plantago asiatica, and its five modification products
Sub Title	
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Publisher	共立薬科大学
Publication year	1991
Jtitle	共立薬科大学研究年報 (The annual report of the Kyoritsu College of Pharmacy). No.36 (1991.) ,p.40- 40
JaLC DOI	
Abstract	
Notes	抄録
Genre	Technical Report
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AN00062898-00000036-0040

No. 36 1991

Reticuloendothelial System-Potentiating and Alkaline Phosphatase-Inducing Activities of Plantago-Mucilage A, the Main Mucilage from the Seed of *Plantago asiatica*, and Its Five Modification Products*

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Five kinds of chemically modified products were prepared from Plantago-mucilage A, the representative mucous polysaccharide isolated from the seed of *Plantago asiatica* L., and their reticuloendothelial system-potentiating and alkaline phosphatase-inducing activities have been investigated. The deacetylated product (DAP) was obtained by treatment with alkali under a very mild condition. DAP was subjected to periodate oxidation followed by reduction. The product (POP) was treated with dilute sulfuric acid at room temperature, then the controlled Smith degradation product (SDP) was isolated. In addition, the mucilage was partially hydrolyzed under the two conditions with dilute trifluoroacetic acid at 60° or 80°. Both the products (HP60 and HP80) were obtained, respectively. Methylation analysis and NMR studies elucidated their structural features. It was shown that the partial hydrolyzates lost all acetyl groups, all xylose branches and many hexuronosyl arabinose side chains in the original mucilage.

Both the effect on the RES and the alkaline phosphatase activity were markedly enhanced when the mucilage was de-*O*-acetylated. The other four products were not effective. The deacetylation effect on these biological activities may be attributed to steric factors.

* 本報告は *Chem. Pharm. Bull.*, **39**, 2068—2071 (1991) に発表.