

of using the facilities of the Institute and for discussions.

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Identification of Galactose and Rhamnose in Birchwood and Aspenwood

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In our last communication¹ we gave the carbohydrate composition of birch and spruce holocelluloses. In continuing our work on the hemicelluloses we have found the previous results to be incomplete, partly due to destruction of easily hydrolyzed sugars, when the standard quantitative saccharification method² is used. Better results have been obtained by employing a milder partial hydrolysis, followed by quantitative saccharification of the residue. The finely divided wood or holocellulose was heated for 15 hours at 95° C with dilute (0.5–1.0 N) sulfuric acid. The hydrolyzate was filtered through a sintered glass filter, and the residue was washed with water. The filtrate and washings were passed through a column of Amberlite IR 4 B anion-exchange resin, then concentrated *in vacuo* and examined by means of paper-partition chromatography. The residue from the partial hydrolysis was hydrolyzed by the standard method.

Applying this method we have found galactose to be present in birch — *Betula*

pubescens and *Betula verrucosa* — and aspen — *Populus tremula* — to the extent of about one per cent. No variations in galactose content could be noticed in birch grown in widely different areas. Our results confirm the work of Gustafsson *et al.*³, who also detected galactose in the same species, but found, however, that the amount varied. On the other hand, Jensen and Nuotio⁴, using Schorger's method for determination of sugars, found galactose in *Betula pubescens* only.

Rhamnose was also detected in these partial hydrolyzates of the two birch species and the aspen. The two birches contained 0.3–0.4 per cent of rhamnose, and the aspen probably somewhat less. Recently Jones and Schoettler⁵ identified L-rhamnose in aspenwood using a similar mild hydrolysis procedure. Up to now the presence of rhamnose as a constituent building unit in the wood hemicelluloses has not been proved⁶. Rhamnose has, however, long been known to be present in gums and mucilages of various origin^{7,8}. Holocellulose contains the same amount of rhamnose as the original wood. It belongs to the easily hydrolyzable part of the hemicellulose.

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