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## Synthesis and characterization of new chromogenic substrates for exoglycosidases: alpha-glucosidase, alpha-mannosidase, and beta-galactosidase

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### Abstract

Glycosides of 4-nitrocatechol (1,2-dihydroxy 4-nitrobenzene) with alpha-D-glucopyranose and alpha-D-mannopyranose were synthesized by the glycosylation of phenol with peracetylated sugars in the presence of BF<sub>3</sub> center dot OBU<sub>2</sub>. The glycoside of 4-nitrocatechol with beta-D-galactopyranose was prepared by the glycosylation of this phenol as sodium phenoxide with tetra-O-benzoyl-alpha-D-galactopyranosyl bromide. The structure of the reaction products was confirmed by H-1 and C-13 NMR spectra and by chemical analysis. The latter consisted of acidic hydrolysis, followed by ethyl ether extraction and colorimetric determination of 4-nitrocatechol in the ether phase and application of the anthrone method for the sugar in the water phase. The synthetic glycosides were tested as substrates for enzymes from animal, vegetal, and microbial materials.

### Keywords

**Author Keywords:** Glycosylation; 4-nitrocatechol-glycoside; exoglycosidase; enzymatic substrate

**KeyWords Plus:** CULTURED SKIN FIBROBLASTS; GAUCHER-DISEASE; FLUORIMETRIC DETERMINATION; YERSINIA-PESTIS; ARYLSULFATASE-A; RAT-LIVER; BACTERIAL; SULFATE; YOPH; ASSAY

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