

Mechanism of Acid Hydrolysis of N-Acetyl-D-glucosamine

N. V. Dolgopyatova^a, V. Yu. Novikov^b, I. N. Konovalova^a, and N. M. Putintsev^a

^a Murmansk State Technical University, Murmansk, Russia

^b Knipovich Polar Research Institute of Marine Fishery and Oceanography, Murmansk, Russia
e-mail: nowitaly@yandex.ru

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Abstract—The hydrolysis kinetics of the chitin monomer, N-acetyl-D-glucosamine, in HCl, HClO₄, and H₃PO₄ was studied in relation to the acid concentration. The rate constants of N-acetyl-D-glucosamine deacetylation and D(+)-glucosamine formation in HClO₄ and H₃PO₄ were determined for the first time. The rate of the acetamide bond hydrolysis in N-acetyl-D-glucosamine depends on the concentrations of hydrogen ions and water. The nucleophilicity of the acid residues does not affect the rate of N-acetyl-D-glucosamine hydrolysis.

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