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GERMANIUM COORDINATION COMPOUNDS FOR INCREASING OF α -L-RHAMNOSIDASES ACTIVITY

Gudzenko O. V., Varbanets L. D., Seifullina I. I., Martsinko E. E., Pirozhok O. V., Chebanenko E. A.

Abstract

The aim of the work was to determine the influence of a number of coordination compounds of germanium, in particular cation-anionic type, on the activity of α -L-rhamnosidases of three producers: *Cryptococcus albidus*, *Eupenicillium erubescens* and *Penicillium tardum* IMB F-100074. Activity of α -L-rhamnosidases was determined according to Davis method, using naringin as substrate. The specific α -L-rhamnosidase activity of preparations was 12 units/mg of protein for

C. albidus

, 120 units/mg for

E. erubescens

and 27 units/mg for

P. tardum

. Protein concentration in preparations was 0.01 mg/ml. Germanium compounds were synthesized in alcohol-water solution according to standardized methods. In all compounds, the same bis (citrate) germanate anion is realized; however, the composition of the cation changes: the protonated form of phenanthroline and bipyridine or the complex cations of d-metals. It was established that none of the complex compounds exhibited an inhibitory effect on the activity of the enzymes under study. Maximum activating effect was observed with compound tris(bi-pyridine)nickel(II) bis(citrate)germanate monohydrate in concentration of 0.1% on α -L-rhamnosidases of

C. albidus

(10-fold),

E. erubescens

(2.5-fold) and

P. tardum

(5-fold). Notably, enzymatic activity increased by 45, 47 and 60% respectively in presences of compound bi-pyridine bis(citrate)germanate dihydrate in same concentration. Hence, it was shown that these two compounds can be used as effectors of studied enzymes.

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