

**INFLUENCE OF SOME COORDINATION COMPOUNDS WITH  
POLYDENTATE LIGANDS ON THE PROTEOLYTIC ACTIVITY OF  
*FUSARIUM GIBBOSUM* CNMN FD 12**

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In order to increase the enzymatic activity of mycelial fungi the influence of some new coordination compounds of Ba, Sr and Ca, including as a ligand dimethyl ester of 2,6-pyridinedicarboxylic acid, on the activity of acid (pH-3.6), neutral (pH-7.4) and alkaline (pH-9.0) proteases synthesized by the mycelial fungal strain *Fusarium gibbosum* CNMN FD 12 was studied. The compounds were added to the nutritive medium in concentrations of 5, 10 and 15 mg/L. The enzymatic activity was determined in dynamics on the 4-6<sup>th</sup> days of cultivation, period of maximum accumulation of proteases. The effect of the tested compounds on the enzymatic activity varied significantly depending on the composition and concentration of the compound, as well as the duration of cultivation and the type of enzymes. It was found that the compound of barium in concentrations of 5 and 10 mg/L intensified the biosynthesis of enzymes, ensuring on the 4<sup>th</sup> day of cultivation high levels of alkaline proteases, comparable to the maximum value presented by the control (without coordination compounds) on 5<sup>th</sup> day of cultivation. Thus, the activity of alkaline proteases on the 4<sup>th</sup> day of cultivation was by 25.7 and 35.8% higher compared to the control from the same day and by 6.2 and 14.7% - compared to the maximum value of control (5<sup>th</sup> day). The metalocomplex of Sr showed a pronounced inhibitory effect on the accumulation of acid proteases in all experimental variants and an increase in alkaline protease activity by 44.2-83.7%. Calcium containing compound exerted a moderate positive effect on acid proteases, in all tested concentrations, ensuring the increase of activity by 13.7-15.8%. In the same time, in concentrations of 15 mg/L, it increased the activity of alkaline proteases by 11.6% and extended the period of active synthesis of neutral proteases, the activity significantly exceeding (by 307.3%) the level of the control of the same day and being practically similar with the maximal value of control.

The evaluated compounds exerted a significant distinct influence, from negative to neutral and positive, on the biosynthesis of the enzymatic components of the proteolytic complex synthesized by the micromycete *Fusarium gibbosum* CNMN FD 12 and can be used for obtaining of enzymatic preparations with different, programmed composition, depending on the field of application.

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