

**TEMPORAL ACTIVITY DYNAMICS OF HYDROLYTIC AND LYTIC
MONOOXYGENASES CELLULASES DURING LONG-TERM FERMENTATION OF
MIXTURES OF PLANT RESIDUES WITH EXHAUSTED AGRICULTURAL SOIL OF
AGROPHYTOCOMPLEXES**

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Temporal activity dynamics of hydrolytic and lytic monooxygenases cellulases during long-term incubation of mixtures of plant residues with exhausted agricultural soil of agrophytocomplexes was investigated. The activity of hydrolytic cellulases decreased within first month of incubation and did not change later on. The cellulase activity of lytic polysaccharide monooxygenases in such a system was investigated for the first time. The dynamics of activity of these cellulases showed several phases. At the beginning the activity decreased (2 weeks), then it stayed low (2 weeks) and after that the activity increased (after 5 weeks) and stayed rather stable until the end of the incubation. Introduction of cells of cellulolytic bacteria strains into cultivated mixtures did not have any effect on the dynamics of activity of cellulases. It is possible to assume that the plant residues – exhausted soil mixtures were not enriched in substrates that could be utilized by introduced strains of bacteria for growth and cellulases production. In addition, activity of lytic polysaccharide monooxygenases could be limited by the lack of available Cu_2^+ . Further study would concentrate on the search of cellulolytic bacteria that were active during incubation of the mixtures and on the optimization of trace elements composition of plant residues – exhausted soil mixtures.

Key words: plant residues, cellulases, available Cu_2^+ , exhausted soil, incubation.