BIOCHEMICAL PARAMETERS OF TYPICAL CHERNOZEM SOIL UNDER SUNFLOWER AND VETCH+OATS IN CROP ROTATION WITH DIFFERENT FERTILIZATION

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The aim of research was to compare soil biological properties under three fertilization systems in crop rotation. The objective was to evaluate the impact of organic fertilizers in crop rotation on enzymatic activities representative of some steps of biogeochemical nutrient cycles: C(invertase), N(urease), P(phosphatase), and general microbial activity (basal soil respiration, ammonification capacity, dehydrogenase activity) in comparison to mineral and mixed fertilization. It was shown, the majority of biochemical parameters studied was reduced in soil under mixture vetch+oats followed sunflower in crop rotation, though the tendencies of change were similar. The enzyme activities were expressed per unit of soil organic carbon and it didn't change the previous conclusion: the urease and phosphatase activities increased, but the invertase activity reduced in soil fertilized by manure in comparison to NPK amendment. Soil basal respiration at field under sunflower was significantly lower ($P<0,05$) in soil amended by manure in comparison to one fertilized by NPK. Nitrogen mineralization capacity (ammonification**)** values were highly variable and do not allowed to reveal significant differences among treatments. Soil dehydrogenase activities of soil samples under both studied crops have shown the lower values at mineral fertilization. Our data confirm the assertion that the organic farming has the favorable impact on the chernozem soil biological properties.