



The xanthine oxidase activity on two kinds of soils: organic soil and mineral-organic soil on the area of an Landscape Park in Turew

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Xanthine oxidase (XO) oxidizes oxypurines (hypoxanthine and xanthine) to uric acid in the purine catabolic pathway (Fujimoto et al. 2000). It participates in the cycle of nitrogen in soils. This enzyme, which is widespread in nature, has been found in vertebrates, invertebrates, higher plants, green algae, fungi, and bacteria (Montalbini 1992).

The investigations were carried out on the transect of peatland 4,5 km long, located in the Agroecological Landscape Park host D. Chł apowski in Turew (40 km South-West of Poznań, West Polish Lowland). The sites investigated were located along Wyskoć ditch. The following material was taken from four chosen sites marked as Zbęchy, Bridge, Shelterbelt and Hirudo. The second object there was on moorsh soils under a 125-m-long shelterbelt located in the Agroecological Landscape Park host D. Chłapowski in Turew. The xanthine oxidase activity was determined spectrophotometrically by measuring uric acid formation at $\lambda_{max}=290$ nm with xanthine as substrate by method of Krawczyński (1972).

The objective of the present work was to investigate of soil biochemical activity by the determination of the xanthine oxidase activity in organic soil (peat) and mineral-organic soil (moorsh) on the area of an Landscape Park in Turew.

Increased activities of xanthine oxidase have been recorded in organic soil (peat) in comparison with mineral-organic soil (moorsh). In peat the highest activities of xanthine oxidase was observed in combinations marked as Bridge (number 2) and in Zbęchy (number 1) and whereas the lowest - in Shelterbelt (number 3) and Hirudo (number 4). Activities of this enzyme in peat ranged from 7.99 to 10.98 $\mu\text{mol uric acid h}^{-1}\text{g d. m soil}$ and in mineral organic soil (moorsh) from 0.92 to 0.94 $\mu\text{mol uric acid h}^{-1}\text{g d. m soil}$.

Obtained results indicate on higher activities of xanthine oxidase in organic soil (peat) than in mineral-organic soil (moorsh).

References

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