THE EVOLUTION OF THE SOIL MICROBIOTA UNDER THE INFLUENCE OF WINTER WHEAT CROP IN THE NORTH-EASTERN REGION OF MOLDOVA

Andrei-Mihai GAFENCU[1], Andreea-Mihaela FLOREA[1], Florin-Daniel LIPȘA[1], Eugen ULEA[1]

e-mail: agafencu@uaiasi.ro

Abstract

Soil microbial diversity is important to sustainable agriculture because microbes mediate many processes that support agricultural production. During four growing seasons of the winter wheat crop (2019-2022), the microbiota of the soil was analyzed, following its evolution during this period of time. Each year, soil samples were taken at two key times for the wheat crop: the beginning of stem elongation (BBCH 32–34) and the end of flowering (BBCH 68–70). The aim of this study was to determine and compare communities of bacteria and fungi occurring in the rhizosphere of winter wheat. The analyzed parameters included: abundance of Gram-positive and Gram-negative bacteria, abundance and genera composition of filamentous fungi. The frequency and composition of soil microbiota were examined in 4-years cultivation of winter wheat. The total number of Gram-negative bacteria was significantly higher compared to the total number of Gram-positive bacteria and filamentous fungi. The dominant groups of fungi were the genera *Penicillium* and *Aspergillus*, which accounted for more than 50% of the total number of fungal colonies identified.

Key words: winter wheat, soil microbiota, bacterial communities, soil microflora