Abstract
Aquasorb, a hydrophilic polymer (a salt copolymer polyacrylamide), works in absorption-release water cycles and has the property to increase the water holding capacity of soils for several years. The trial was conducted with maize (*Zea mays* L.) grown on a 2-3% slope field from the Ezăreni Farm, which belongs to USAMV Iaşi, studying the effects of polymer quantity ha^{-1}, polymer administration moment and soil tillage systems on soil population. The objectives of this research were to isolate and quantify the existing microbial population in soil (Gram positive bacteria, Gram negative bacteria, micromycetes) establishing their participation ratio, the main fungus genres which activate in soil and their activity level for each variant. The results illustrate the influence of Aquasorb and soil tillage systems on the dinamic of microorganisms population, on the relationship between the main groups (bacteria and fungi), and on the micromycetes spectrum determined in each variant of our experiment.

Key words: Aquasorb, soil population, soil tillage system, maize (*Zea mays* L.)