EFFECT OF SILVER NANOPARTICLE AND ORGANIC BIOSTIMULATOR NITROZIME OVER MICROPORES AND GERMINATION, GROWTH AND DEVELOPMENT OF SEEDS OF TRITICUM AESTIVUM TO LEVEL OF A BIO ACCUMULATIVE HORIZON TYPE CAMBIC SOIL

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Abstract

The present paper monitors the effect of applying different doses of silver nanoparticles (10 ppm, 15 ppm, 20 ppm), and the effect of organic biostimulator Nitrozimes (2ml/l) on the germination, growing and development of the Triticum aestivum species. The changes suffered by the bioaccumulation horizon of the cambic chernozem at micro porous level is also investigated. The silver nanoparticle solution is obtained through electrolysis technique in miliQ water solvent using Nevoton IS-112 device with silver electrodes of 99.99% purity. The determination of the ppm quantity is realized by using TDS-1. The seed germination is tracked in a controlled environment (Petri dishes) in laboratory conditions for 10 days until germination. After, they are transferred in vegetation dishes in the grow house and tracked in a controlled environment of temperature, humidity and soil pH. Data on the micro porosity was taken and analyzed at I.C.A.M. Laboratories in the V. Adamachi resort using micro computed tomography (Brucker Skyscan 1172). The germination evolution, growth and development of the wheat plants was measured weekly throughout the growing season. The results show a reduction in the diameter of the micropores that is inversely proportional to the concentration of silver ions doses applied. From the germination phase until 2-3 leafs stage, the growth is approximately double than the development of the witness plants (untreated wheat grown in bioaccumulative horizon).

Key words: silver nanoparticles, biostimulator, soil structure.