Abstract
Plants growth and development, water and soil solution are highly connected to its physical properties. Application of synthetic polymers as soil conditioners improves soil physical properties which increase soil resistance against disruptive forces and erosion. The objective of this study was to establish the direct effect of carboxylic polyelectrolyte *"Ponilit GT1"* on soil structure and indirectly on some physical properties, bulk density, total porosity and penetration resistance. The researches have been conducted at the Didactical and Experimental Research Station Ezareni belonging to ''Ion Ionescu de la Brad'' University of Agriculture Sciences and Veterinary Medicine Iasi, Romania. A randomized complete block design with three replications was used in the experiment. Carboxylic polyelectrolyte *"Ponilit GT1"* was applied at 0.1% and 0.3% concentrations. Soil structure development was evaluated by comparing the structural parameters treated with those untreated with carboxylic polyelectrolyte. The result of this study shows increased values of studied parameters after application of carboxylic polyelectrolyte within sowing-emergence period and only 0-5 cm depth. Because the thickness of the soil treated with polymeric substances is small, the values of studied parameters in 12-15 cm depth and 22-27 cm respectively, are not significantly different remaining within limits close to control.

Key words: Polymers, structure, bulk density.