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SOIL STRUCTURE AND WATER-STABLE AGGREGATES

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Abstract

The stability of soil aggregates is an indicator of soil structure. Soil acidity affects soil structure stability. Soil acidity has two components: active acidity and exchangeable acidity. In natural conditions, each soil type has a certain level of acidity, which is given by its composition, natural vegetation, the chemical composition of precipitations and other factors that cause changes over time in soil pH. Acidic soils are characterized by physical, chemical and biological properties adverse to crop development. The main objective of the research was to establish a correlation between exchangeable acidity and soil structure stability. Experimental research was conducted on 16 soil types, which are characteristic to North Moldova and Bucovina, Romania’s provinces. The total cation exchange capacity (T) of this soils is between 11.11 and 53.20 me/100g and the exchange bases sum (SB) varies from 0.70 to 31.92 me/100g. The correlations between I_s (water stability index of soil structure) and H^+/T are given by linear regression and by regression straight intervals with variable slope. Researchers have shown that to a variation of H^+/T ratio between 0.0-0.6, aggregate stability more pronounced decrease with increasing concentration of H^+ exchangeable ions in the soil, compared with the range 0.8-1 of the ratio. In the second range, the influence of increasing concentration of exchangeable H^+ ions on the stability of soil structure is less pronounced.

Key words: acidity, aggregates, limestone, soil, structure stability

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