

## THE STRUCTURAL VULNERABILITY OF CHERNOZEMS FROM BARAGAN UNDER THE CLIMATE CHANGES STRESS

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### Abstract

The paper emphasized the structural vulnerability of two Chernozems from Baragan Plain (P1 – non-irrigated and P2 – irrigated) by the aim of the structural hydrostability indicators: structural instability index (IS); soil dispersion (D - % g/g); structural macro-hydrostability (AH - % g/g). The analytical results showed, in P1, that the values of the structural instability index (IS), in the tilled layer, is high (0.74 in Ap) to very high (1.01 in Apt) and decreased to medium (0.48 – 0.66) in the lower horizons.

In P2, the IS values ranging from extremely high (3.77) in the top Ap horizon to very high (1.04 – 1.58) in the deeper horizons; except the Am horizon, where the IS reached the minimum value (0.38) in the profile. The extremely high – very high values of IS showed a high risk to soil destructuration. The values of D are medium and low for AH (in THE tilled layer); while in P2: D values are high–medium, while AH values are very low–low, increasing with depth. At the microscopic level, the analytical data are clearly reflected by the micromorphological images for both soil profiles: in P1 the structural aggregates (as well as macrofauna coprolites) are partially (and/or totally) consumed by the terrophagous (and coprophagous) mesofauna – showed by their rounded shape; while in P2, the structural aggregates collapsed under physico-mechanical processes, due to their friability – showed by their angular shapes. The results showed medium–low (P1) – high (P2) vulnerability to structural degradation (in the tilled layers).

**Key words:** structural instability index; micromorphology; vulnerability.