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The pedogeochemical segregation a few horizons in soils from glass houses

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Our studies have focused the apparition and manifestation conditions of pedogeochemical segregation phenomena in case of soils from Copou – Iaşi, Bacău and Bârlad (Romania) glass house, and the effects of this on the pedogeochemical and agrochemical characteristics of soils from glass houses cultivated with vegetables.
The utilization of intensive cultivation technologies of vegetables in glass houses determined the degradation of morphological, physical and chemical characteristics of soils, by rapid evolution of salted processes (salinization and / or sodization), compaction, carbonatation, eluviation-illuviation, frangipane formation, stagnogleization, gleization etc. Under these conditions, at depth of 30-40 cm is formed a compact and impenetrable horizon - Ahok(x) horizon. In function of exploitation conditions and by the chemical-mineralogical characteristics of soils from glasshouses, the Ahok horizons can have frangipane properties, expressed more or less. These horizons determined a geochemical segregation of soils from glass houses: (i) superior horizons, above Ahok(x) horizon evolve in weak oxidative conditions, weak alkaline pH, higher salinity, humidity and temperature; (ii) inferior horizons, below Ahok(x) horizon evolve in weak reducing conditions weak acid pH, lower salinity, humidity and temperature. Concomitant with the development of Ahok(x) horizons, the rapid degradation of the properties of soils from glasshouses is observed.
The aspects about the formation of frangipane horizon in soils from glasshouses are not yet sufficiently know. Whatever of the formation processes, the frangipane horizons determined a sever segregation in pedogeochemical evolution of soils from glass houses, with very important consequences on the agrochemical quality of these soils. The segregation effects are manifested in the differential dynamics of pedogeochemical processes from superior horizons (situated above the segregation horizon), in comparison with the inferior horizons (situated below the segregation horizon), and in global evolution of degradation processes of soils from glasshouses.
The results obtained by as have shown that together by mobile forms of Si, Al and Fe, at the formation of segregation horizons (frangipane), an important role has the phosphorus (organic. in special) and the organic-mineral complexes, respectively. The experimental results indicate a strong accumulation tendency, at the level of pedogeochemical segregation horizons - Ahok(x) horizons, of fin grain-size fractions and of amorphous forms of mineral components. Also, was observed that in the composition of soil aggregates from frangipane horizon, and important weight have the smectites, amorphous iron oxides and oxy-hydroxides, amorphous silica and organic matter. The particularity of pedogeochemical segregation horizon (frangipane) from Copou-Iaşi glass house is given by the relatively high contents of: (i) phosphorus – organic, in special, as inositol-phosphoric esters; (ii) fulvic acids; (iii) organic-mineral complexes – with special composition and structure, and (iv) poly-metha-phosphate associated with aluminosilicated gel - from chemical point of view has the characteristics of a pseudo-solid solution by (SiO2)x(Al2O3)y(PO4)z type, where x / z = (10-16) / 1, and y / z = (3-5) / 1); this appear as nodular depositions ([U+F0C6] = 3-5 mm) covered with thin iron-carbonated crust.
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