Trace metals content in the grasslands and forest soils from Republic of Moldova

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Landscape geochemical research methods are designed to highlight the distribution, concentration and bioaccumulation of trace metals in environmental components characterized according to geochemical distribution and migration of chemical elements. This study describes the spatial distribution of trace metals in the soil surface horizon and vertical distribution on the soil profiles in forest and grassland landscapes from Republic of Moldova.

Materials and Methods

We examined ten soil profiles; from the surface horizon 21 soil samples were analyzed and vertical distribution on the soil profiles in three different soil types (gray forest soil, chernozem and rendzina) from forest and grassland landscapes. Soil samples were collected from each genetic horizon. The trace metal content was analyzed using X-ray Fluorescence Spectrometry (EDXRF Epsilon 5).

Discussion of Results

Geochemical data were statistical processed being established also chemical proprieties of soils. The means concentration of analyzed chemical elements in Republic of Moldova soils are: Cu (32 mg/kg); Zn (71 mg/kg); Ni (39 mg/kg); Co (13 mg/kg); Pb (20 mg/kg) and As (5.0 mg/kg) [1]. In the European topsoil the means are: Cu (17.3 mg/kg); Zn (52 mg/kg); Ni (37.3 mg/kg); Co (10.4 mg/kg); Pb (32.6 mg/kg) and As (11.6 mg/kg) [2]. In this study measured content are: Cu (21.5 mg/kg); Zn (56.2 mg/kg); Ni (23.5 mg/kg); Co (6.9 mg/kg); Pb (11.5 mg/kg) and As (1.89 mg/kg). The abundance of trace metals measured in topsoil decrease as follows: Zn > Ni > Cu > Pb > Co > As. Trace metal content in the soil profile are below to the geochemical background in the gray forest soils, chernozem and rendzina.

[1] V.P. Kiriliuk (2006) Trace elements in the biosphere components of Moldova. 89 [2] W. de Vos et Tarvainen (2006) Geochemical Atlas of Europe