3.20P.28 Phytoeffects of chemical soil contamination in acute and chronic experiments E.V. Prudnikova, Lomonosov Moscow State University / Faculty of Soil Science; O. Yakimenko, Lomonosov Moscow State University / Soil Science; V. Terekhova, Lomonosov Moscow State University / Lab of Ecotoxicological Soil Analysis. This study was aimed to compare the effects of heavy metal polluted soils on higher plants in acute and chronic experiments. We investigated the impact of polymetallic pollution (lead, copper and zinc) on plant growth parameters. White mustard (Sinapis alba L.) was used for the bioassay as it is the recommended plant species for soil quality assessments according to the Russian standard (Russian Federal Register FR 1.31.2012.11560). Samples of agro soddy-podzolic soil (Eutric Albic Retisol (Loamic, Aric, Cutanic, Ochric)) were collected on two experimental fields located in the Moscow region (56°02'01.9°N 37°10'04.9°E and 56°01'41.7°N 37°11'04.3°E) (IUSS Working Group, 2014). Samples were collected from the upper soil layer (0-20 cm), differing in the amount of organic carbon (s1 C - 3.86% and s2 C - 1.30%) and were prepared in accordance with ISO 11464:2006°FESoil quality -Pretreatment of samples for physico-chemical analysis" (ISO 11464, 2006). Control and metal-spiked (650 mg/kg Pb + 1100 mg/kg Zn + 660 mg/kg Cu) soil samples were analyzed.. Seed germination, root and shoot length of Sinapis alba seedlings were estimated in acute and chronic phytotests using eluate and applicative experimental design. According to acute method, specially designed boxes were used. Each box has two compartments; the volume of each compartment is 92 cm³. The lower compartment is for root growth. In applicative design of experiment it is filled in with soil, then filter paper was placed in the lower box compartment and moistened with deionized water. In eluate design of experiment the lower compartment is filled in with filter paper soaked in aqueous extracts of soil samples. For the eluate design of experiment aqueous extracts were prepared immediately before the bioassay using soil/water ratio of 1/4. The upper compartment is for shoot growth. Then, ten seeds of Sinapis alba were placed on the filter paper in each box and incubated for 4 days at 22-24°C and 60%. For chronic phytotest, the soil was placed in pots. Ten seeds of white mustard were planted in each pot (400 g of soil) The pots with soil samples were incubated for 30 days in an open greenhouse with natural temperature fluctuations (in June at about 20-24 °C and 60% relative soil humidity. Each experimental had 3 replicates. According to the data obtained, test responses of mustard seedlings affected by polymetallic contamination were identical (strong growth inhibition) in the chronic experiment and in the acute experiment using applicative method. Similar effects were observed both in humus-rich (s1) and humus-poor (s2) soils. In contrast, in acute experiment with soil water extracts (eluate design) significant differences in test responces were observed, both for the bulk soil, and between soils that differ in humus status. Water extracts of humus-rich (s1) soil markedly stimulated plant growth. Thus, the eluate method which is recommended for laboratory express phytotesting of soil toxicity using soil aqueous extract has limitations. It cannot adequately indicate the level of toxicity caused by metall contamination in soils rich in organic carbon