

Cd, Cu, Pb i Zn u Terra rossi Dalmacije

Boško Miloš¹, Aleksandra Bensa²

¹*Institut za jadranske kulture i melioraciju krša, Put Duilova 11, Split, Hrvatska (bosko@krs.hr)*

²*Agronomski fakultet Sveučilišta u Zagrebu, Svetošimunska 25, Zagreb, Hrvatska*

Sažetak

Cilj rada je bio utvrditi koncentracije kadmija, bakra, olova i cinka u horizontima Terra rosse Dalmacije. Istraživanje je provedeno na 105 uzoraka tla, uzetih iz A i (B)rz horizonata 61 pedološkog profila. Cd, Cu, Pb i Zn su ekstrahirani zlatotopkom (HRN ISO 11466), a njihove koncentracije u ekstraktu tla, određene su optičkom emisijskom spektrometrijom induktivno spregnutom plazmom (ICP-OES). Prema HRN ISO standardima su analizirana i osnovna svojstva tla: pH, sadržaj humusa, P₂O₅, K₂O i teksturni sastav. Sadržaj kadmija u površinskom horizontu varirao je od 0,65 do 8,53 mg/kg, a u dubljem 0,55 do 7,56 mg/kg. Bakar se kretao od 16,5 do 70,5 mg/kg u površinskom, te 17,0 do 50,2 mg/kg u dubljem horizontu. Olovo je bilo u rasponu 25,2 do 55,2 mg/kg u A horizontu i 15,8-49,8 mg/kg u (B)rz horizontu, dok je cink varirao između 53,1 i 129,7 mg/kg u površinskom i 49,7 do 132,4 mg/kg u dubljem horizontu. Prosječna koncentracija kadmija u površinskom horizontu bila je 2,19 mg/kg, bakra 37,77 mg/kg, olova 40,98 mg/kg i cinka 99,47 mg/kg, a u dubljem horizontu kadmija je bilo prosječno 2,13 mg/kg, bakra 36,10 mg/kg, olova 35,58 mg/kg i cinka 98,15 mg/kg. Odnos srednjih vrijednosti koncentracija analiziranih metala u površinskom i dubljem horizontu kreće se od 1,01 za cink do 1,15 za olovo. Utvrđena vertikalna ujednačenost koncentracije analiziranih elemenata u profilu tla upućuje na njihovo geogeno porijeklo.

Ključne riječi: Terra rosa, Dalmacija, Cd, Cu, Pb, Zn

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Boško Miloš¹, Aleksandra Bensa²

¹*Institute for Adriatic Crops and Karst reclamation, Put Duilova 11, Split, Croatia*

²*Faculty of Agriculture, University of Zagreb, Svetošimunska 25, Zagreb, Croatia*

Summary

The aim of this study was to determine the concentrations of cadmium, copper, lead and zinc in horizons of Terra rossa in area of Dalmatia. The study was conducted on 105 soil samples, taken from A and (B)rz horizons of 61 soil profile. Cd, Cu, Pb and Zn were extracted by aqua regia (HRN ISO 11466), and their concentrations in soil extracts were determined by optical emission spectrometry inductively coupled plasma (ICP-OES). The basic soil properties: pH, humus content, P₂O₅, K₂O and texture were analyzed according to HRN ISO standards. Cadmium content in the surface horizon varies from 0.65 to 8.53 mg/kg, and in deeper (B)rz horizon ranged from 0.55 to 7.56 mg/kg. Copper concentrations ranged from 16.5 to 70.5 mg/kg in the surface horizon and from 17.0 to 50.2 mg/kg in the deeper horizon. Lead was in the range 25.2 to 55.2 mg/kg in the A horizon and from 15.8 to 49.8 mg/kg in (B)rz horizon, while zinc varied between 53.1 and 129.7 mg/kg at the surface horizon and from 49.7 to 132.4 mg/kg in the deeper horizon. The average concentrations of cadmium, copper, lead and zinc in the surface horizon were: 2.19 mg/kg, 37.77 mg/kg, Pb 40.98 mg/kg and 99.47 mg/kg, respectively. In deeper horizon average concentration of cadmium was 2.13 mg/kg, copper 36.10 mg/kg, lead 35.58 mg/kg and zinc 98.15 mg/kg. The ratio of mean metal concentrations in surface and deeper horizon ranges from 1.01 for zinc to 1.15 for lead. Established vertical uniformity of metal concentrations in soil profile suggests their geogenic origin.

Key words: Terra rossa, Dalmatia, Cd, Cu, Pb, Zn