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**THIRD INTERNATIONAL CONFERENCE
SUSTAINABLE POSTHARVEST AND
FOOD TECHNOLOGIES
INOPTEP 2013**

and

**XXV NATIONAL CONFERENCE
PROCESSING AND ENERGY
IN AGRICULTURE
PTEP 2013**

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U POLJOPRIVREDI
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THE CONTENT OF MERCURY IN ALFALFA SAMPLES FROM GLEYIC CHERNOZEM

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Increased concentrations of heavy metals in some agricultural areas, primarily as a result of human influence, threaten, among other things, the production of high-quality feed. *Medicago sativa* L. (alfalfa) is a perennial legume, which is regarded as the leading and most important forage crop for the production of quality feed and used in fresh and canned condition as hay, haylage, silage, meal, pellets and paste. The aim of this study was to determine the levels of mercury in soil and plants *Medicago sativa* L., to obtain information on safety of this nutrient. The examination was conducted in Hrtkovci, in the Republic of Serbia. Examined soil belongs to the automorphic soils, humus-accumulative class, type of chernozem, subtypes on loess and loess-like sediments and variety gleyic chernozem, with profile A_{mo}-AC-C. Soil has a good physical and chemical properties and is suitable for the production of alfalfa, if contamination with heavy metals would not be a limiting factor. The study involved eight localities. Sampling of soil and plant material was carried out in May 2011., in the second production year of alfalfa. Soil samples were taken in a disrupted state with agrochemical probe, at a depth of 0-30 cm. Mercury content was determined by cold vapor technique, using atomic absorption spectrophotometer. The mercury content in soil samples of examined localities was below the 0.001 mg/kg, which was not exceeded maximum level of 2.0 mg/kg, according to the Regulations on permitted amounts of hazardous and harmful substances in soil and water for irrigation and methods of their analysis (Službeni glasnik RS, no. 23/1994). The content of mercury in *Medicago sativa* L. was below 0.001 mg/kg, which is below the maximum permitted concentration, according to the Regulations on the quality of the feed (Službeni glasnik RS, no. 4/2010) is 0.1 mg/kg. On the basis of these results it can be concluded that the examined samples of alfalfa are suitable for feeding animals and do not threaten the food chain, as well as safe food production.

Key words: mercury, alfalfa, feed, gleyic chernozem

SADRŽAJ ŽIVE U UZORCIMA LUCERKE SA OGLEJENOG ČERNOZEMA

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Povećane koncentracije teških metala na nekim poljoprivrednim površinama, prvenstveno usled antropogenog uticaja, ugrožavaju, između ostalog, i proizvodnju visokokvalitetne stočne hrane. *Medicago sativa* L. (lucerka) je višegodišnja leguminoza, koja se smatra vodećom i najvažnijom krmnom kulturom za proizvodnju kvalitetne stočne hrane, a koristi se u svežem i konzervisanom stanju kao seno, senaža, silaža, brašno, peleti i pasta. Cilj rada je bio da se utvrdi nivo žive u zemljištu i biljkama *Medicago sativa* L., radi dobijanja informacije o zdravstvenoj ispravnosti ovog hraniva. Ogljed je izveden na području mesta Hrtkovci u R Srbiji. Ispitivano zemljište pripada redu automorfni, klasi humusno-akumulativnih, tipu černoze, podtipu na lesu i lesolikim sedimentima, te varijetetu oglejeni černoze, s građom profila Amo-AC-C. Zemljište se odlikuje povoljnim fizičko-hemijskim svojstvima i pogodno je za proizvodnju lucerke, ukoliko kontaminacija teškim metalima ne bi bila ograničavajući faktor. Ispitivanjem je obuhvaćeno osam lokaliteta. Uzorkovanje zemljišta i biljnog materijala je izvršeno tokom maja 2011. godine, u drugoj proizvodnoj godini lucerke. Uzorci zemljišta su uzeti u narušenom stanju, agrohemijskom sondom sa dubine 0-30 cm. Sadržaj žive je određen tehnikom hladnih para na atomskom apsorpcionom spektrofotometru. U svim uzorcima zemljišta ispitivanih lokaliteta sadržaj žive je bio ispod 0,001 mg/kg, čime nije prekoračena maksimalno dozvoljena količina od 2,0 mg/kg, prema Pravilniku o dozvoljenim količinama opasnih i štetnih materija u zemljištu i vodi za navodnjavanje i metodama njihovog ispitivanja (Službeni glasnik RS, br. 23/1994). Sadržaj žive u *Medicago sativa* L. bio je ispod 0,001 mg/kg, što je ispod maksimalno dozvoljene koncentracije, koja prema Pravilniku o kvalitetu hrane za životinje (Službeni glasnik RS, br. 4/2010) iznosi 0,1 mg/kg. Na osnovu rezultata istraživanja može se zaključiti da su ispitivani uzorci lucerke pogodni za ishranu životinja te ne ugrožavaju lanac ishrane, kao ni proizvodnju zdrave hrane.

Ključne reči: živa, lucerka, stočna hrana, oglejeni černoze