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Utjecaj selena na raspodjelu teških metala u tkivima jelena lopatara (*Dama dama* L.)

Effect of selenium on the distribution of heavy metals in tissues of fallow deer (*Dama dama* L.)

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UTJECAJ SELENA NA RASPODJELU TEŠKIH METALA U TKIVIMA JELENA LOPATARA (*Dama dama* L.)

Neška Vukšić, mag. ing. agr. ⁽¹⁾

Disertacija ⁽²⁾

Svrha ovoga istraživanja bila je utvrditi koncentraciju teških metala (Cd, Pb, Hg i As) i esencijalnih elemenata (Fe i Se) u tkivima jelena lopatara (mišić, bubreg, jetra, masno tkivo i slezena) prije dodavanja selena u hranu i nakon toga, kako bismo utvrdili međudjelovanje selena s teškim metalima u tkivima i utjecaj dodatka selena na imunohematološke (KKS i DKS), biokemijske (GUK, UREA, CRE, ALB, TGC, KOL, HLD, LDL, Fe, TP, GLOB i IgG) pokazatelje i pokazatelje oksidacijskoga stresa (SOD, GPx, GSH i vitamin E). Istraživanje je provedeno na 40 jelena lopatara koji su odstrijeljeni u sezoni lova tijekom dvije godine istraživanja. Napravljena je i analiza staništa, koja je obuhvaćala analize tla, listinca, prizemne flore i prihrane. Dopunska hranidba, uz dodatak selena (0,5 mg/kg), provodila se 60 dana tijekom druge godine istraživanja. Tijekom prve godine istraživanja utvrđene su povećane koncentracija Cd i Pb u tkivima jelena lopatara, dok je koncentracija Se bila niska. Nakon dopunske hranidbe, uz dodatak selena, utvrđena je manja koncentracija teških metala u tkivima i poboljšana je antioksidativna zaštita. Dodatak selena nije imao negativan učinak na ostale ispitane parametre.

Ključne riječi: jelen lopatar, teški metali, selen, antioksidativna zaštita, imunost jelena lopatara

EFFECT OF SELENIUM ON THE DISTRIBUTION OF HEAVY METALS IN TISSUES OF FALLOW DEER (*Dama dama* L.)

Doctoral thesis

The aim of this study was to determine the concentration of heavy metals (Cd, Pb, Hg and As) and essential elements (Fe and Se) in fallow deer tissues (muscle, kidney, liver, adipose tissue and spleen) before the addition of selenium in the food and after that to determine the interaction of selenium with heavy metals in the tissues and the influence of selenium on immunohaematological (CBC and WBC), biochemistry (glucose, urea, CRE, ALB, TGC, KOL, HLD, LDL, Fe, TP, GLOB, IgG) indicators and indicators of oxidative stress (SOD, GPx, GSH and vitamin E). The research was conducted on 40 fallow deer that were shot in the hunting season during the two year research. Analysis of habitat included analyses of soil, tree leaves, grasses and fodders. Supplemental nutrition with the addition of selenium (0.5 mg/kg) was carried out for 60 days in the second year of the research. During the first year of the experiment there were increased concentrations of Cd and Pb in the tissues of fallow deer whereas concentration of Se was low. After supplementary feeding with the addition of selenium, concentration of heavy metals in the tissues was lower and antioxidant protection was improved. Addition of selenium had no negative impact on other tested parameters.

Key-words: fallow deer, heavy metals, selenium, antioxidant protection, immunity of fallow deer

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(2) Disertacija je obranjena na Sveučilištu Josipa Jurja Strossmayera u Osijeku, Poljoprivrednom fakultetu u Osijeku 10. srpnja 2015. godine pod mentorstvom prof. dr. sc. Marcele Šperande/Doctoral thesis was defended at Josip Juraj Strossmayer University of Osijek, Faculty of Agriculture in Osijek on 10 July 2015 tutored by Prof. Dr. Marcela Šperanda