IZPOSTAVLJENOST LJUDI OSTANKOM FITOFARMACEVTSKIH SREDSTEV

Sanja VRANAC[1], Jernej DROFENIK[2], Milena KOPRIVNIKAR-BOBEK[3]

[1, 2, 3]Ministrstvo za kmetijstvo, gozdarstvo in prehrano, Fitosanitarna uprava Republike Slovenije

IZVLEČEK

Sodobna kmetijska pridelava sloni na uporabi fitofarmacevtskih sredstev, ki ob pravilni uporabi predstavljajo najpomembnejši način pridelave zadostne količine kakovostne hrane. Napačna ali nenadzorovana uporaba teh sredstev lahko hkrati povzroči negativne vplive na ljudi, živali in okolje. Z uporabo sredstev za varstvo rastlin je dobršen del človeške populacije stalno izpostavljen ostankom pesticidov, zlasti prek živil rastlinskega in živalskega izvora in vode. Vnos pa je odvisen od količine ostankov v živilih in količine zaužitih živil, ki ostanke vsebujejo. Pri registraciji fitofarmacevtskih sredstev se za ugotavljanje tveganja ostankov pesticidov aktivnih snovi, njihovih metabolitov ter razgraditvenih produktov izdela kronična in akutna ocena tveganja za zdravje ljudi, ki predstavlja enega od ključnih kriterijev pri odločanju o registraciji. Ocena tveganja se izračuna z modeli, ki na eni strani upoštevajo izpostavljenost ljudi ostankom fitofarmacevtskih sredstev prek prehrane, določi se maksimalna količina ostankov, ki jih ljudje zaužijejo, ta vrednost se primerja s toksikološkimi lastnostmi ostankov. Pri kronični oceni tveganja se količina ostankov primerja s sprejemljivim dnevnim vnosom (ADI, acceptable daily intake), pri akutni oceni tveganja pa z akutnim referenčnim vnosom (ARfD, acute reference dose). Zagotavljanje in nadzor nad sprejemljivo izpostavljenostjo ljudi ostankom fitofarmacevtskih sredstev je eden od ključnih elementov problematike varne hrane v sodobni družbi. S tem prispevkom želimo prikazati in približati ocenjevanje tveganja za zdravje ljudi pri postopku registracije, in v primeru prekoračitev mejnih vrednosti ostankov tako pridelovalcem, kot tudi potrošnikom.

Ključne besede: Fitofarmacevtska sredstva, maksimalne vrednosti ostankov, kronična ocena tveganja, akutna ocena tveganja, sprejemljiv dnevni vnos in akutna referenčna doza

ABSTRACT

HUMAN EXPOSURE TO PESTICIDE RESIDUES

Modern agricultural production is based on the use of plant protection products which, if properly used, represents the most important method for the production of sufficient quantities of foodstuffs. The improper or uncontrolled use of these products may result in negative effects on human health, animals and the environment. Because of the use of plant protection products a substantial share of human population is constantly exposed to pesticide residues, mainly through the foodstuffs of plant and animal origin and water. However the input depends on the quantity of residues in foodstuffs and on the quantity of the consumed foodstuffs, which contain the residues. In order to establish the risk for residues of the pesticides, their metabolites, and breakdown products, a chronic and acute risk assessment for human health is carried out upon registration of plant protection products, which is one of the main criteria in deciding on the registration. The risk assessment is calculated by the means of models, which consider the exposure of humans to pesticide residues through foodstuffs, the maximum quantity of the consumed residues is determined and the value is compared with toxicological properties of residues. When carrying out chronic risk assessment the quantity of residues is compared with acceptable daily intake (ADI), and at acute risk assessment with acute reference dose (ARfD). To ensure and supervise the acceptable exposure of humans to pesticide residues is one of the key elements of the problematic of food safety in the modern society. The aim of this article is to represent to and get producers as well as consumers familiar with the risk assessment for human health in the registration procedure and in the event of exceeded maximum levels for pesticide residues.

Key words: Plant protection products, maximum levels for pesticide residues, chronic risk assessment, acute risk assessment, acceptable daily intake, acute reference dose

[1]mag. uni. dipl. inž. agr., Einspielerjeva 6, 1000 Ljubljana
[2]dr. uni. dipl. inž. kem., Einspielerjeva 6, 1000 Ljubljana
[3]univ. dipl. inž. agr., Einspielerjeva 6, 1000 Ljubljana