DRUŠTVO ZA VARSTVO RASTLIN SLOVENIJE

Vpliv interakcije med virusi in herbicidi na gostiteljske rastline

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Ker 50 odstotkov prodaje pesticidov predstavljajo herbicidi, je s praktičnega vidika dobro poznati koristne stranske učinke nekaterih herbicidov, vključno z vplivom na odnos gostitelj-virus. V tem smislu je najbolj znano protivirusno delovanje triazinov, karbamida, dinitroanilina in herbicidov tipa avksinov. Namen raziskave je bil, preučiti vpliv nekaterih aktivnih snovi v herbicidih (pendimetalin, napropamid, fluazifop-P-butil) na lokalne (Obuda pepper virus – *Nicotiana glutinosa*, Obuda pepper virus – *Chenopodium amaranticolor*) in sistemične (Obuda pepper virus – paprika (*Capsicum annum*), Obuda pepper virus – *N. tabacum* 'Samsum', alfalfa mosaic virus – *C. amaranticolor*) okužbe.
Raziskave kažejo, da je vpliv herbicidov na odnos gostitelj – virus močno odvisen od vrste in varietete gostitelja, tipa herbicidov, načina aplikacije in odmerka. Pri lokalni okužbi rastlin vrste *N. glutinosa* z Obuda pepper virus, je pendimetalin zmanjšal število lezij za 55 %. Pri sistemični okužbi smo opazili 4 tipe reakcije na herbicid: (1) zaradi uporabe herbicidov rastline niso bile okužene, (2) rastline so bile okužene, vendar je bila koncentracija virusov znantno nižja kot pri pozitivni kontroli, (3) herbicidi niso vplivali na koncentracijo virusov v listih in (4) herbicidi so (samo v enem primeru) znatno povečali koncentracijo virusov.
Rezultati kažejo, da nekateri herbicidi delujejo ne le na plevele temveč zavirajo tudi gospodarsko pomembne vrste virusov, ki se pojavljajo v agroekosistemih.
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ABSTRACT

Interaction of viruses and herbicides on host plants

Regarding, that 50 percent of pesticide sales is made up by herbicides, from practical point of view it is important to know the beneficial side effect of several herbicides, including the effect on host-virus relations. The best known in this respect is the antiviral activity of triazine, carbamide, dinitroaniline and auxine-type herbicides.
The aim of our study was to examine the effect of some active herbicide ingredients (pendimethalin, napropamide, fluazifop-P-butyl) on local (Obuda pepper virus - *Nicotiana glutinosa,* Obuda pepper virus - *Chenopodium amaranticolor*) and systemic (Obuda pepper virus - pepper, Obuda pepper virus - *Nicotiana tabacum* 'Samsun', alfalfa mosaic virus - *Chenopodium amaranticolor*) host - virus relations.
It is concluded that the effect of herbicides on host-virus relations greatly depends on hosts (species, varieties), type of herbicides, mode and dosage of application. In Obuda pepper virus - *Nicotiana glutinosa* local host-virus relations pendimethalin reduced the number of the local lesions by 55%. In systemic host virus relations four types of herbicide effect were observed: (1) Plants were not infected due to the herbicide treatments, (2) Plants infected, but the virus concentration was significantly lower, as compared to positive control, (3) Herbicides did not

influence the virus concentration in the leaves, and (4) Herbicides (only in one case) significantly enhanced virus concentration.

Our results pay attention to the fact, that certain herbicides may play important role not only against weeds, but also have inhibitory effect on economically important viruses, occuring in agricultural ecosystems.

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