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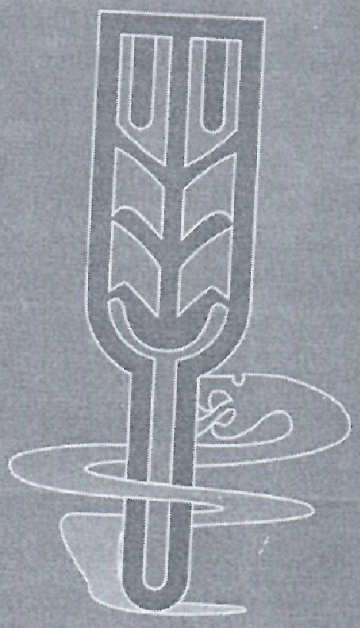
Nada Ostojić

Third Annual Balkan Week of Plant Health

BOOK OF ABSTRACTS



Plant Protection Institute
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Bulgaria

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Pesticide residues in apple samples on the market of Republic of Serbia 2004-2007

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The residues of pesticides in fruit are the consequence of their direct application in the agricultural production. In order to comprehend in what condition the pesticide residues in fruit are and how hazardous they are to human health, it is essential to carry out a long-lasting monitoring of their residue content and to create a data base and a base of contaminant contents.

The fruit consumption nowadays is increasing in the world, almost 170 kg/person/year. Since the pesticides are widely used for fruit protection at present, their excessive use can jeopardize human health so the content of their residues must be checked on.

Our study comprised the determination of pesticide residue content in 108 samples of apples from the market of the Republic of Serbia taken during 2004-2007 (27 samples were analyzed in 2004, 55 samples in 2005, 30 samples in 2006 and 13 samples in 2007). The pesticide residues were determined by gas chromatography with NPD, ECD and GLC - MS. The samples were tested for the content of 75 pesticides with LOD of 0.001 to 0.005 mg/kg which were lower than MRLs according to the EU standards. The relative standard deviation was lower than 19% for all the tested compounds. In the apple samples taken during 2004, the percentage of the samples positive to the pesticide residue content was 51.85% and the most frequent contaminants were Σ HCH (50% of positive samples) and endosulfan (28.57%) whereas the content of all the other pesticide residues was below the EU MRLs. In the analyzed samples, taken during 2005, out of 70.91% samples in which the pesticide residues were detected, endosulfan was present in 41.03%, captan in 35.9%, chlorpyrifos in 20.51% and parathion in 17.95% (with 71.43% residue over the EU MRLs) samples.

The content of the procymidone residue was detected in two samples as well as the content of lambda-cyhalothrin found in one sample was over the EU MRLs. During 2006 thirteen samples of apples were analyzed in which no pesticide residues were detected. Out of 13 samples analyzed in 2007, five contained the pesticide residues below the EU MRLs with the most frequently detected dithiocarbamate (3 samples).

The high percentage of samples positive to the pesticide residue content is a warning that in the production conditions a continuous and multi-level monitoring of food safety needs to be a regular practice aiming at the successful prevention of harmful effects of pesticides on the health of people and animals.

Keywords: apple, pesticides, residues, GLC, monitoring

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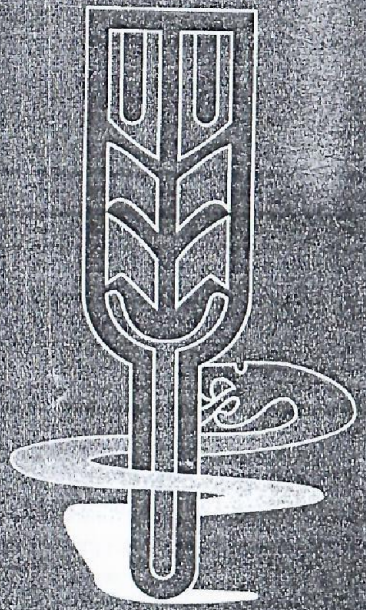

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POSTER SESSION

Influence of some herbicides in maize on the yield and quality of barley and fodder beet

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The influence of four herbicides in maze on the yield and quality of the succeeding crops barley and fodder beet was studied in a three-year field experiment conducted in the test-field of the Agrarian University of Plovdiv. The following herbicides were applied: 750 g/kg izoxaflutol (substance Merlin VG at a dose of 12,5 g/da); 840g/l acetochlor (substance Gardian at a dose of 250 ml/da); 600 g/l 2,4 D esther (substance Maton 600 EK at a dose of 110 ml/da), and 40g/l nicosulphuron (substance Mistral 4 SK at a dose of 130 ml/da). The herbicides impact on a large number of quality and quantity indices in crops was studied: absolute mass in g, hectoliter mass in kg, grain yield in kg/da, absolute dry substance in %, fats in %, starch in %, and dry protein in % with respect to barley, and root length in cm, root volume in cm3, root weight in g, yield of roots in kg/da, absolute dry substance in %, cellulose in %, total nitrogen, phosphorus, potassium and calcium in %, etc, with respect to the fodder beet.

The highest yield of barley an fodder beet was obtained in the case in which the maze in the preceding year was treated with acetochlor and 2,4-D ester, respectively 468,4 kg/da and 18036 kg/da, compared to yield of 252,2 kg/da barley and 8696 kg/da fodder beet, grown after non-treated with herbicides maze. With respect to the quality and quantity indices of barley, no considerable differences were observed between the treated plants and non-treated control plants. With respect to the quality indices of fodder beet, no considerable differences were observed between the variants as well, except for the amount of magnesium and calcium in the non-treated control plants and the variants treated with izoxaflutol.

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