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Assessment of population growth of *Rhopalosiphum padi* /L./ aphids on the seedlings of selected maize cultivars

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Maize (*Zea mays* L.) is one of the most economically important cereal species. At present, maize breeding is directed towards the search for hybrid varieties exhibiting increased resistance to unfavorable environmental factors. The aim of this study was to assess the susceptibility of seedlings of four selected maize cultivars to infestation by wingless adult females of the bird cherry-oat aphid (*Rhopalosiphum padi* L.).

Materials and methods

The biotests were carried out on 14-day-old maize seedlings (Nimba, Kanonier, Podium and Prezent cultivars) under controlled conditions in the environmental chamber. Population size and its structure as well as feeding site preferences of wingless females of *R.padi* on the tested maize seedlings were determined. Two levels of aphid infestation of the host plants (initially 5 and 50 aphids per seedling) and two periods of the insect feeding (5 and 10 days) were tested.

Results

The accomplished biotests allowed to classify the Nimba cv. as susceptible, Kanonier and Podium cvs appeared to be moderately resistant, while Prezent cv. was highly resistant to the examined insects (Fig.1-2). The aphid populations reached higher abundance on the seedlings of susceptible Nimba cv., compared to more resistant cultivars, and this effect was dependent on the initial level of the aphid infestation. In addition, the larvae were predominant in the population structure of *R.padi* on the seedlings of all the tested maize cultivars. On the other hand, higher number of adult females were found on Nimba plants in comparison with the resistant varieties.

Furthermore, it has been revealed plasticity of feeding site preferences of *R.padi* aphids when feeding on the seedlings of the investigated maize cultivars. The highest variation in foraging preference of the insects occurred during infestation of Nimba seedlings, whereas the lowest on the Prezent plants.

Maize seedlings infested with apterous females of *R.padi*.

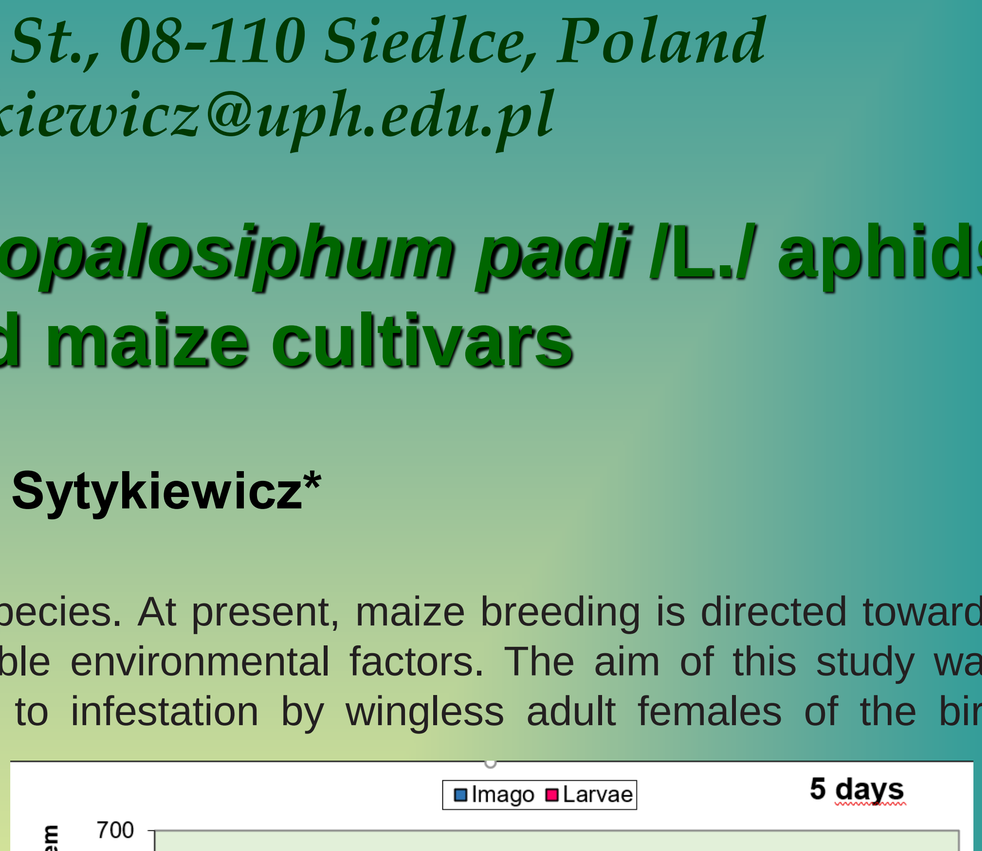

Fig. 1. Abundance of *R.padi* aphids on the seedling stem of tested maize cultivars (after 5 and 10 days of feeding). (5), (50) – maize plants initially infested by 5 and 50 aphids per seedling, respectively. Different letters denote significant differences between the mean values (±SD) (Tukey's test; P<0.05).

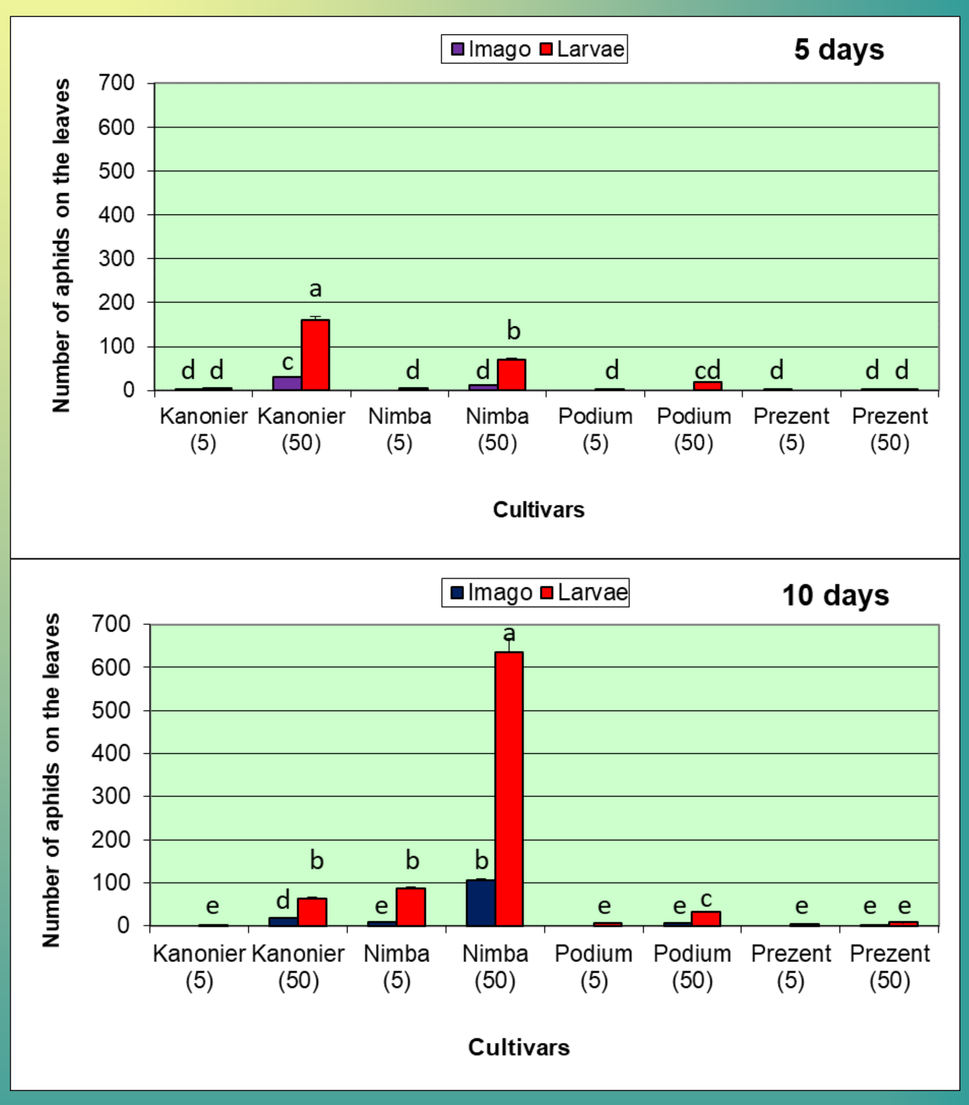

Fig.2. Abundance of *R.padi* aphids on the seedling leaves of tested maize cultivars (after 5 and 10 days of feeding). (5), (50) – maize plants initially infested by 5 and 50 aphids per seedling, respectively. Different letters denote significant differences between the mean values (±SD) (Tukey's test; P<0.05).

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