

## Host Plant Preference of Aphids, Thrips and Spider Mites on GNA-expressing and Control Potatoes

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The effect of snowdrop lectin (*Galanthus nivalis* agglutinin; GNA) expression on host-plant preference was examined with a two-choice disc test. Discrimination between a transgenic potato [*Solanum tuberosum* (Solanaceae)] capable of synthesizing GNA, and an isogenic cultivar, was studied under laboratory conditions using the glasshouse potato aphid *Aulacorthum solani* (Hemiptera: Aphididae), the onion thrip *Thrips tabaci* (Thysanoptera: Thripidae), and the two-spotted spider mite *Tetranychus urticae* (Acari: Tetranychidae). Adults of these species were placed individually on leaf discs (one half transgenic and one half control) and observed 1, 24, 48, 72 and 96 h after release, at which times also the distributions of *A. solani* nymphs and *T. urticae* eggs on the discs were recorded. Aphids were found more frequently on control leaves at all observation periods, with the highest bias observed at 72 h (only 35.9% of all aphids were found on the GNA halves). Similarly, more aphid nymphs (57.6% of the total) were found on isogenic half-discs. The percentage of thrips found on GNA halves ranged from 36.8% to 48.4%, with significant control-potato bias at the first three observations. Contrary to this, the proportion of *T. urticae* females found on GNA halves was significantly lower than the expected proportion (0.5) at 72 and 96 h, with a minimum of 34.0% on GNA. The distribution of spider mite eggs reflected the observed biased distribution of females (only 34.1% of all eggs were laid on GNA half-discs). These results indicate that potatoes expressing GNA for resistance against aphids are less preferred than an isogenic cultivar by all three tested species under a choice test condition using excised leaves.

**KEY WORDS:** Insect-resistant transgenic plants; snowdrop (*Galanthus nivalis*) lectin; two-choice preference test; non-target organisms; *Aulacorthum solani*; *Thrips tabaci*; *Tetranychus urticae*.

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