Effect of previous exposure to hydroxamic acids in probing behavior of aphid Sitobion fragariae on wheat seedlings

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We hypothesized that aphids after previous exposure to hydroxamic acids (Hx), a family of secondary plant compounds deleterious to aphids, are able to reduce their subsequent exposure to them. This hypothesis was tested by evaluating the time to produce salivation into a sieve element (SSE) by the aphid Sitobion fragariae on seedlings of two wheat cultivars of Triticum aestivum differing in their concentration of Hx. The total time to produce a first SSE was significantly longer in the high-Hx cultivar; however, the subsequent, second SSE (first SSE after interruption of probing) in this cultivar was significantly reduced, reaching the level observed in the low- Hx plants. Therefore, a strategy to reduce the exposure to secondary compounds was observed only in the second SSE in high-Hx plants. When the experimental plant was replaced by a new unattacked plant after the first SSE, aphids did not change the behavior described, thus excluding an aphid-induced plant susceptibility. The nu