

Relationships between salicylic acid content, phenylalanine ammonia-lyase (PAL) activity, and resistance of barley to aphid infestation

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It has been suggested that salicylic acid (SA) is a signal in acquired resistance to pathogens in several plants. Also, it has been suggested that infestation of plants causes an increase in the activity of phenylalanine ammonia-lyase (PAL), a key phenolic biosynthesis enzyme. The purpose of this work was to investigate whether the induction of SA and PAL activity is related to the susceptibility of barley to aphid infestation. The induction of free and conjugated SA in two barley cultivars that differ in susceptibility to aphids was analyzed. Analyses of several physiological parameters showed that cv. UNA-80 was more susceptible to the aphid *Schizaphis graminum* than cv. LM-109. Salicylic acid was not detected in noninfested plants. Levels of free and conjugated SA in cv. LM-109 and of conjugated SA in cv. UNA-80 increased with aphid infestation, whereas the levels of free SA in cv. UNA-80 remained high under all infestation degrees. Maximum values reached in both cultivars were not s