367 – IMPROVED RESISTANCE IN STRAWBERRIES THROUGH THE USE OF ACIBENZOLAR-S-METHYL AND HARPIN

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INTRODUÇÃO

Induced resistance can lead to the direct activation of defenses, but can also lead to the priming of cells, resulting in stronger elicitation of those or other defenses, following pathogen attack. The objective of this study was to evaluate the effect of acibenzolar-S-methyl (ASM) and harpin protein, applied pre-harvest, in the induction of resistance in strawberry to pathogens and mites.

METODOLOGIA

The experiment was conducted in a greenhouse, in a randomized block design with three replications. The treatments with the elicitors harpin protein, harpin ab protein and ASM were established by applying the commercial products Messenger (3 % ai) at a dose of 0.75 g L^{-1} , ProAct (1 % ai) at a dose of 2.50 g L^{-1} and Bion 500WG at a dose of 0.0005 kg^{-1}, respectively. Five sprays of the elicitors, with 15-day intervals between each, were performed from 60 to 120 days after transplantation. In addition to this, a spray treatment was applied containing distilled water to act as a control treatment. Twenty-four hours after the second application of the elicitors, we proceeded with the inoculation of the fungus *Botrytis cinerea* Pers ex Fr (108 spores L^{-1}).

RESULTADOS E CONCLUSÕES

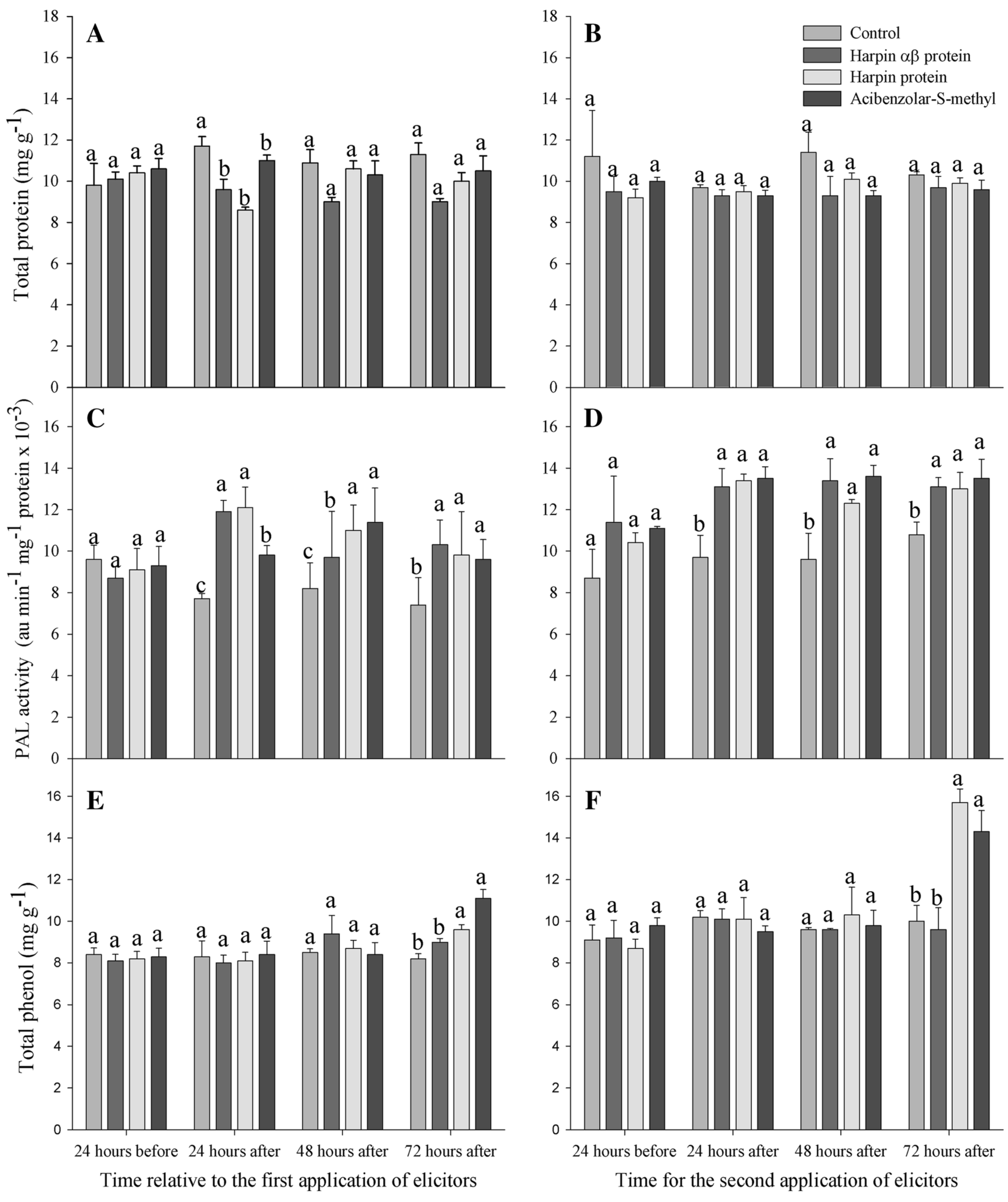

Fig. 1 Total protein content (A and B) activity of the enzyme phenylalanine ammonia lyase (PAL) (C and D) and the total phenol content (E and F) in strawberry, cv. 'Camarosa', treated with harpin αβ protein (HαβP), harpin protein (HP) or acibenzolar-S-methyl (ASM). Means followed by different letters are statistically different by the Scott-Knott test ($p \leq 0.05$). Data normality was confirmed for all the variables using the Shapiro-Wilk test ($p \leq 0.05$). The fungus *Botrytis cinerea* was inoculated on the strawberries 24 hours after the second application of elicitors

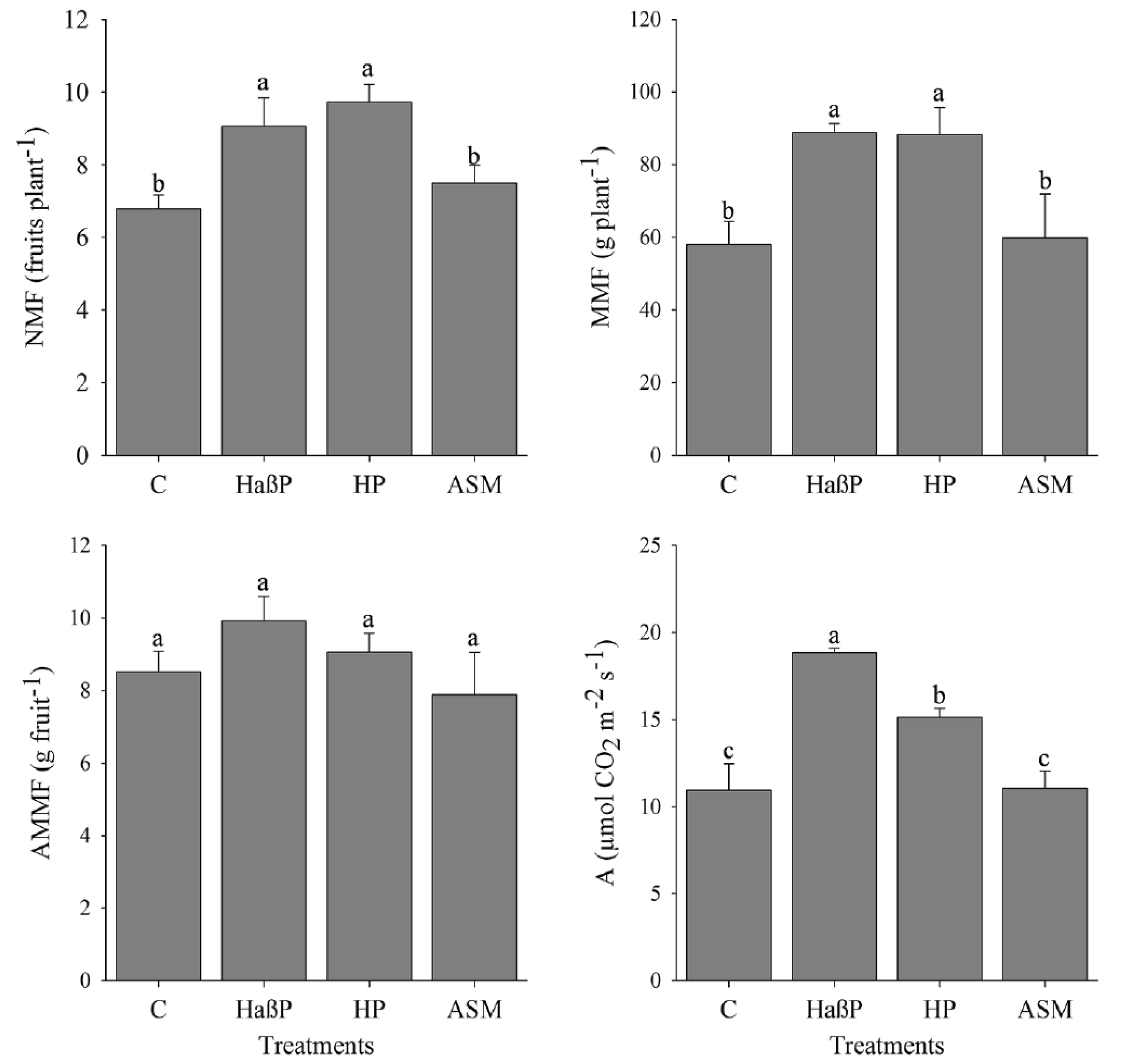

Fig. 2 Number of marketable fruits per plant (NMF), weight of marketable fruits per plant (MMF), mean weight of marketable fruits (AMMF) and photosynthesis (A) in strawberry, cv. 'Camarosa', treated with harpin αβ protein (HαβP), harpin protein (HP) or acibenzolar-S-methyl (ASM). Means followed by different letters are statistically different by the Scott-Knott test ($p \leq 0.05$). Data normality was confirmed for all the variables using the Shapiro-Wilk test ($p \leq 0.05$)

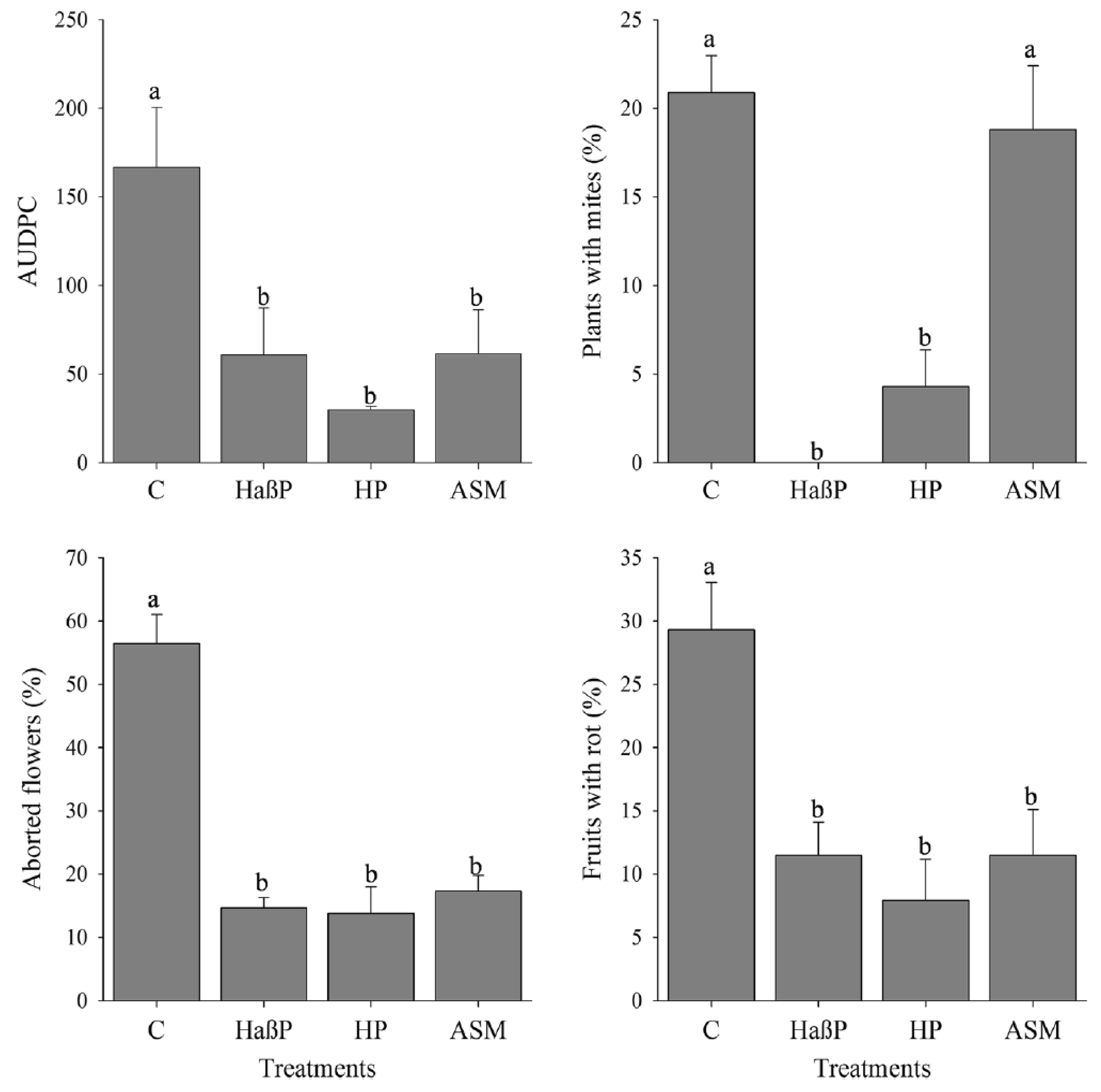

Fig. 3 Area under the disease progress curve (AUDPC) for severity of leaf blight, percentage of plants with mites, percentage of aborted flowers and percentage of fruit with rot caused by *Botrytis cinerea*, in strawberry, cv. 'Camarosa', treated with harpin αβ protein (HαβP), harpin protein (HP) or acibenzolar-S-methyl (ASM). Means followed by different letters are statistically different by the Scott-Knott test ($p \leq 0.05$). Data normality was confirmed for all the variables using the Shapiro-Wilk test ($p \leq 0.05$)

The application of ASM and harpin protein induced resistance in the strawberry plants, resulting in an increase in phenylalanine ammonia-lyase activity and total phenol production, while reducing leaf blight and grey mould. The application of harpin protein also caused a reduction in mite damage, while increasing photosynthetic rate and the production of marketable fruits. The elicitors ASM and harpin, applied pre-harvest, can be used as part of the integrated pest management of diseases and pests of strawberry.

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