

Changes in the sulphur metabolism of pepper cultivars inoculated by *Verticillium dahliae*

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Verticillium dahliae is a soilborne pathogen that causes vascular wilt in pepper, *Capsicum annuum* L. var. *annuum*. The fungal hyphae penetrate the host through the root epidermis or wounds, crossing cortical root tissues to the xylem elements. In the xylem, the mycelium proliferates by rapid colonisation of the whole vascular system. Pepper varieties completely resistant to this pathogen are not known. However, several studies have demonstrated that different grades of tolerance exist. Two varieties which show different degrees of tolerance have been employed in this study. The content of sulphur is analyzed in them to investigate whether sulphur accumulation forms part of the tolerance mechanism of pepper to *V. dahliae*. For this, both the levels of elemental sulphur, as its localisation in stems, and levels of sulphate, glutathione and cysteine, were studied. Results showed that the accumulation of elemental sulphur takes place within a few days in the inoculated plants. In control plants, elemental sulphur was not detected. Results obtained by SEM-EDX demonstrate that sulphur does not show a restricted location, but it was dispersed in the vascular tissue. The levels of sulphate diminished at the end of the experiment in inoculated plants. This decrease seems to be related to the increase of sulphur levels observed in both cultivars.

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