

EFFECTS OF NITROGEN FORM SUPPLY ON THE RESPONSE TO FUSARIUM OXYSPORUM F. SP. MELONGENAE IN EGGPLANT LINES CARRYING PARTIAL RESISTANCE

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Eggplant (*Solanum melongena* L.), a wide-spread and commonly consumed vegetable, is susceptible to fungal infection caused by *Fusarium oxysporum* f. sp. *melongenae* (Fom), that can persist in the soil for many years, resulting into plant wilting and significant yield loss. It is known that the specific N-form can either prevent or delay the plant symptoms development. This phenomenon occurs in several relevant crops, however, to the best of our knowledge, no data is available about the N-form effects on the response to Fom fungal wilt in eggplant.

The present work aimed to investigate the molecular mechanisms behind the eggplant response to Fom inoculation following NO₃⁻ or NH₄⁺ supply compared to control (no supply, N0), using two Fom partially resistant lines, '67/3' and AM199.

Disease symptoms evaluation after Fom inoculation on the eggplant lines supplied with different N-forms (NO_3^- , NH_4^+) compared to N_0 revealed reduced symptoms incidence to Fom inoculation in plants under NO_3^- in both genotypes. By contrast, a divergent behaviour was detected when plantlets of the two lines were grown under NH_4^+ supply: no clear difference between 67/3 and its control while AM199 displayed a much more evident symptomatology mainly 15 days after inoculation.

Plantlets of both genotypes were sampled at three different times after Fom or mock (control) inoculation: T0 (concurrently to Fom inoculation), T4 (after 4 hours), and T15 (after 15 days). RNA-seq libraries were prepared and sequenced by Illumina high-throughput platform, and then aligned to the latest release and high-quality reference '67/3' genome. Differentially Expressed Genes (DEGs) analysis was carried out adopting appropriate and informative pairwise comparisons within samples. A Weighted-Gene Correlation Network Analysis (WGCNA) was then performed, revealing clusters of DEGs similarly regulated which could shed light on the different behaviour induced by N forms in the eggplant response to Fom inoculation.