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Phytophthora cinnamomi Rands (Pc), is considered one of the most virulent and invasive phytopathogens in the world, with a high incidence in non-forest and forest species such as chestnut, cork and holm oaks, avocado, blackberry, or tomato causing leaf and root rot, crown, and trunk canker. The life cycle of Pc involves the production of highly virulent mobile asexual zoospores (Zs), which allows their dispersion of them through soil and water currents by the aquatic environment, establishing a high biodiversity of belowground interactions with several host. At this work, we will show new approaches for the study and management of Zs under strictly controlled conditions, at the laboratory. Those techniques allowed us to study the tomato-Pc pathosystem. Opening new tools for expanding our current knowledge about this phytopathogen and the interaction with forest and non-forest host.

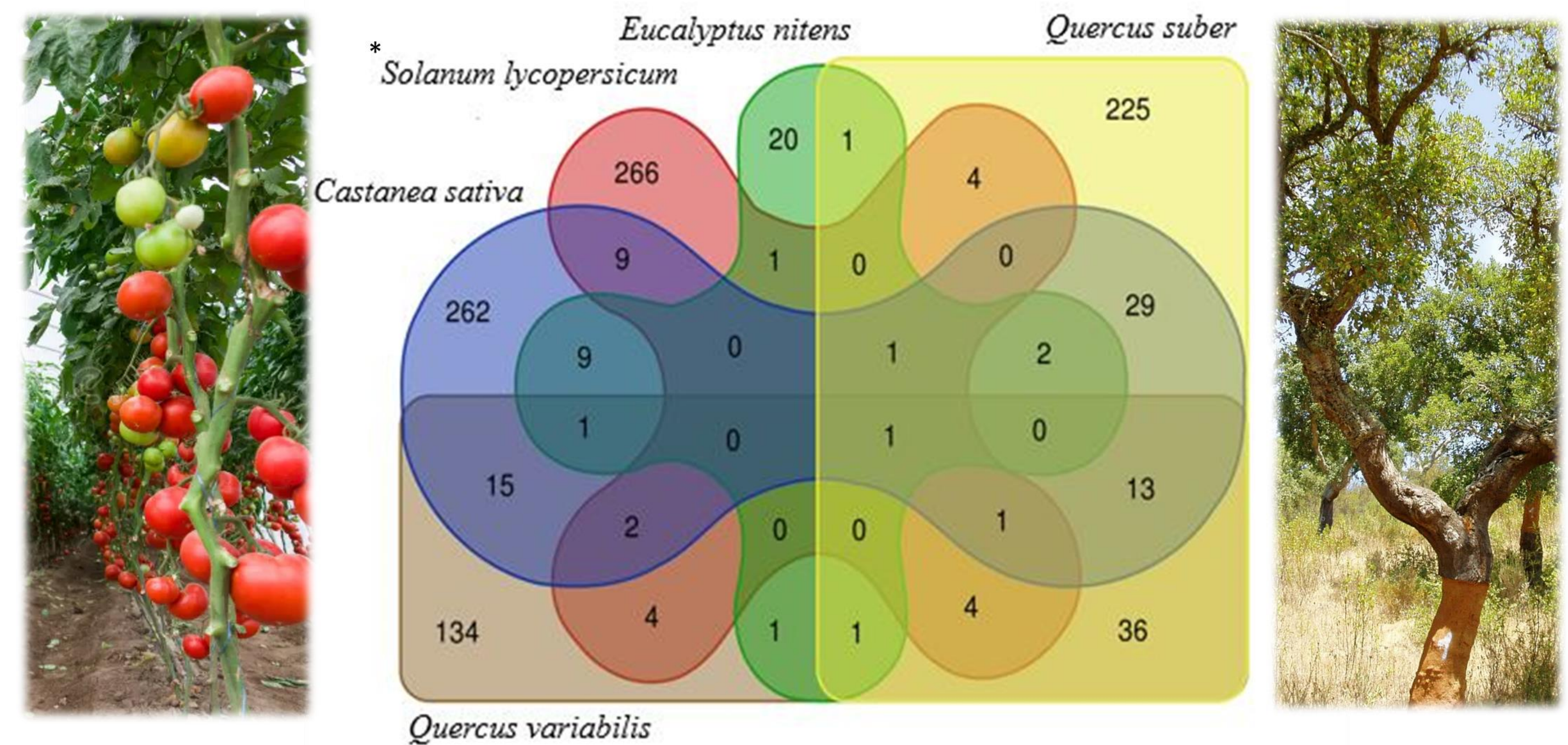


Figure 3. - Comparative transcriptomic analysis. Molecular response to Pc were compared between forest and non-forest species, looking for differential and common molecular targets and pathways. Venn diagram were done using selected genes available at public data.

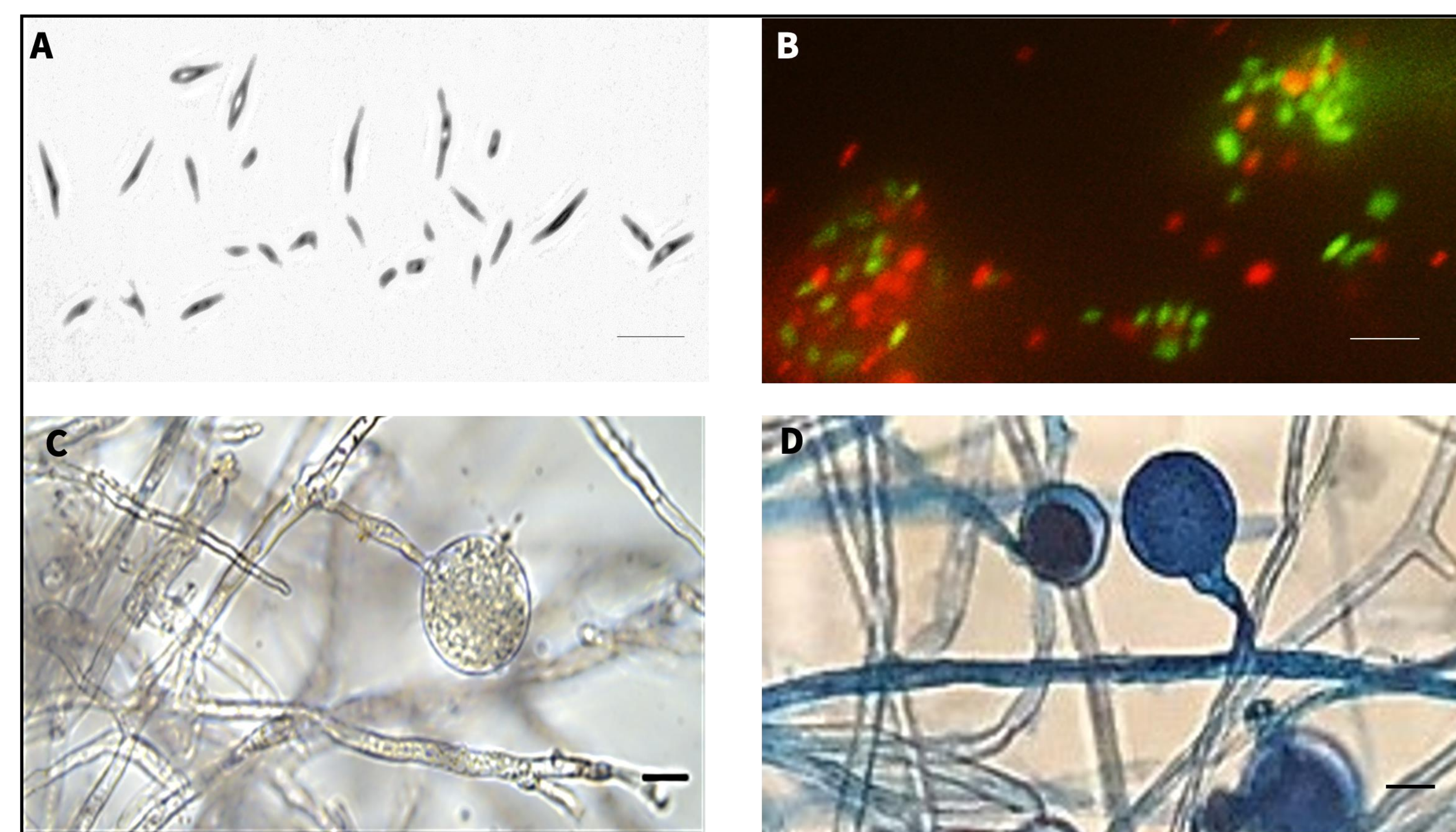


Figure 1. -Physiological studies of Zs. A. Bright image of moving Zs (40x). B. Survival of Zs followed by fluorescence. (A-B, Bars: 30 μ m). C-D. Bright image (left panel), and trypan blue staining (right panel), of sporangia producing Zs (Bars: 50 μ m).

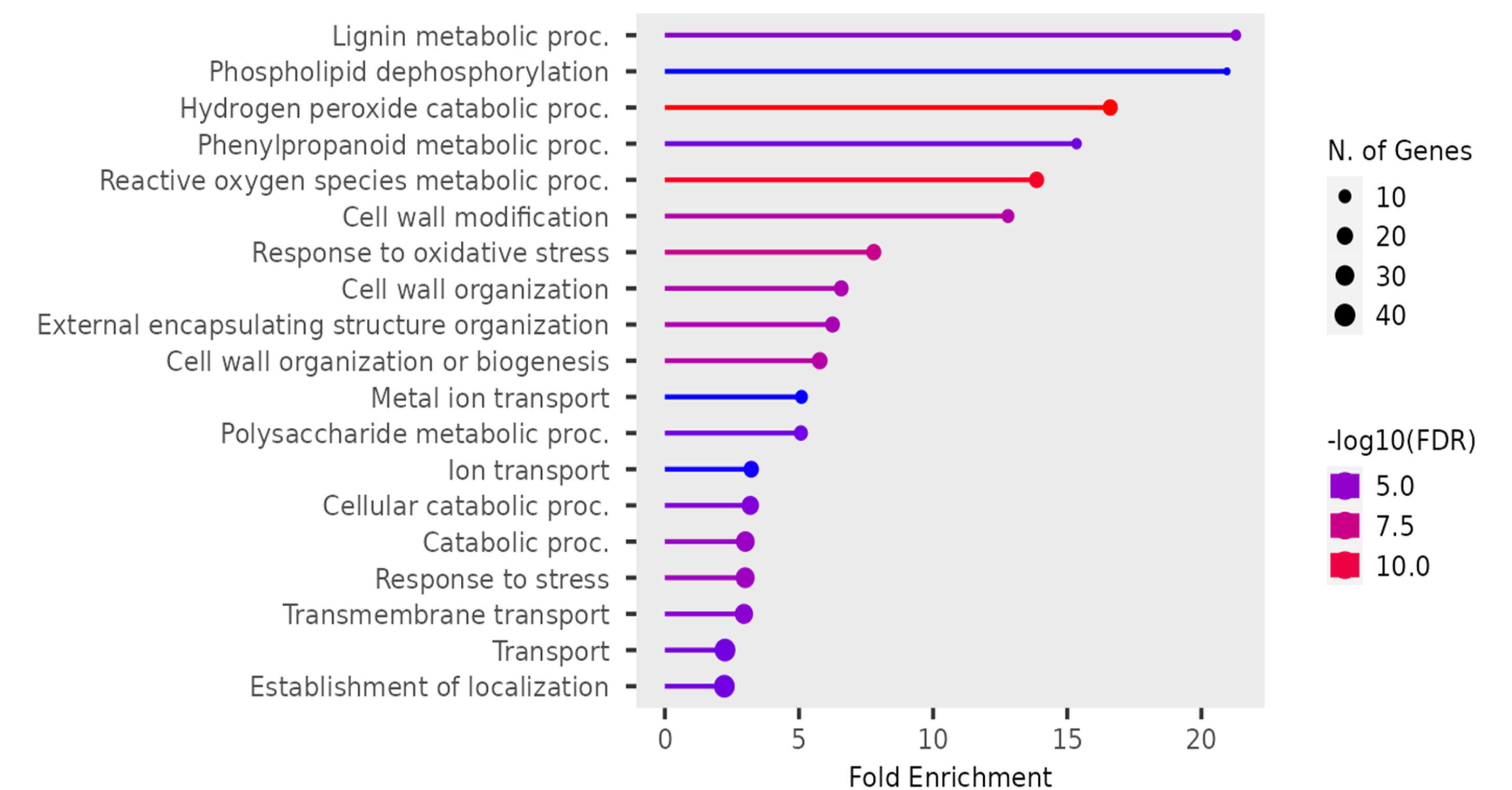


Figure 4. - Pathway analysis enrichment. A transcriptomic analysis of tomato seedlings responding to Pc were performed in order to determine the mechanism involved into Pc defence responses.

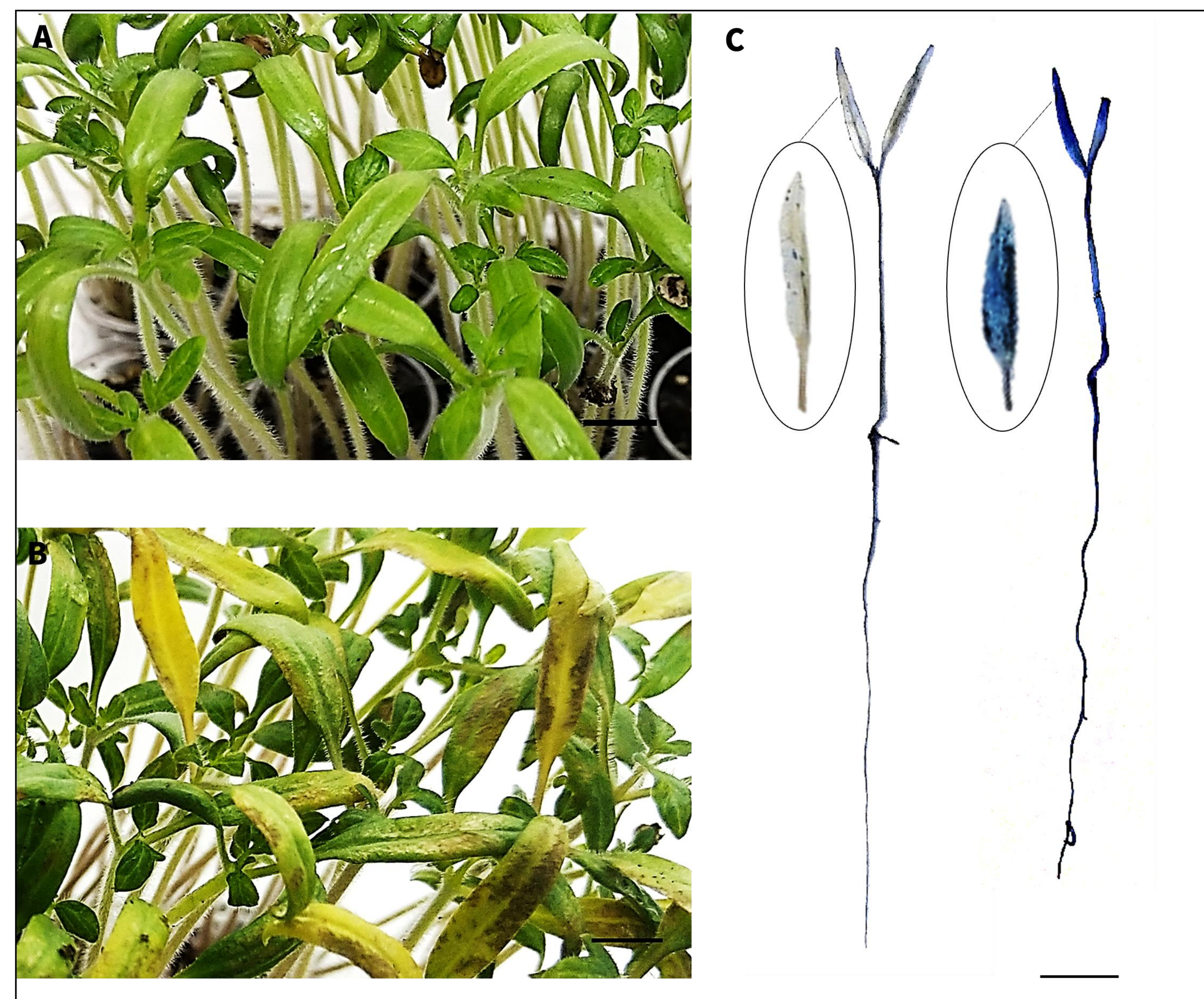


Figure 2. - Symptomatology of tomato seedlings inoculated with Pc. A-B. Control plants (upper panel), and eighteen days old tomato seedlings growth on soil and inoculated with 10^8 Zs/ml, after 3 days of inoculation (dpi). C. Trypan blue staining of seedlings showing necrosis symptoms at 3 dpi. (Bars: 1cm).

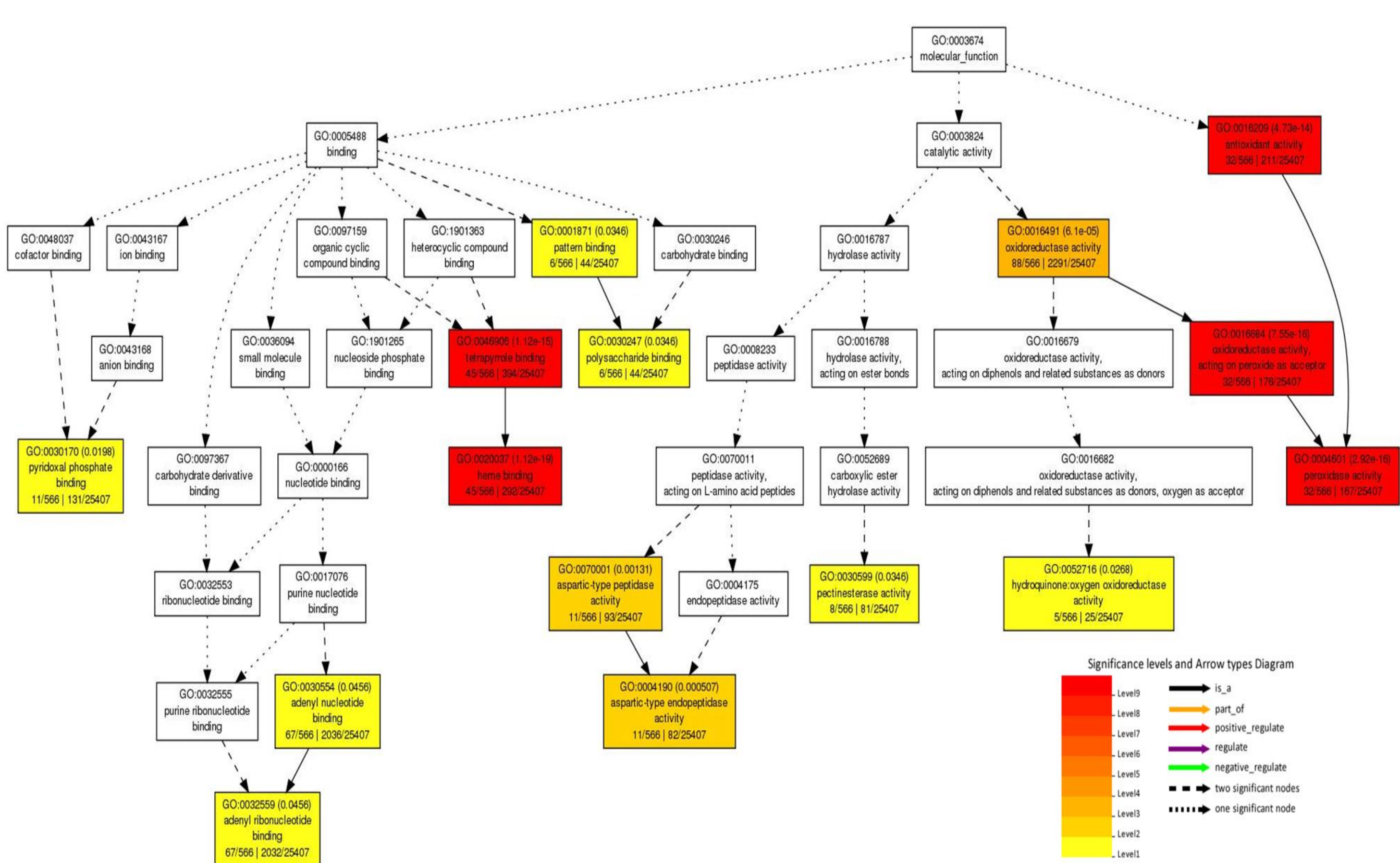


Figure 5. - Singular enrichment analysis (SEA). Gene ontology terms up-regulated on tomato seedlings after 3dpi of inoculation with Pc. Data were obtained from ITAG4.0 data base, using Agrigo tool v 2.0. (<http://systemsbiology.cau.edu.cn/agriGOv2/>).

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