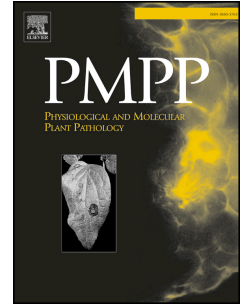


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Dry mycelium of *Penicillium chrysogenum* activates defense via gene regulation of salicylic acid and jasmonic acid signaling in *Arabidopsis*

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The dry mycelium of *Penicillium chrysogenum* (DMP) induces systemic acquired resistance (SAR), which enhances defenses in plants. To understand the molecular mechanisms involved in DMP-mediated signaling pathways, we examined the mRNA levels in *Arabidopsis* with jasmonic acid (JA), DMP or salicylic acid (SA) treatment compared with a control. RNA-Seq based transcriptome analysis revealed that the differentially expressed genes (DEGs) after DMP treatment were significantly enriched in three metabolism pathways shared by SA treatment and one additional pathway shared by JA treatment. Key DEGs, including *PRI*, *EIN3* and *FRK1*, in the SA, JA/ethylene (ET) and pathogen-associated molecular pattern (PAMP)-triggered immunity (PTI) pathways for

Abbreviations: BY2, *Nicotiana tabacum* L. Bright Yellow-2; COG, Cluster of Orthologous Groups of proteins; DEGs, differentially expressed genes; DMP, aqueous extract of the Dry mycelium of *Penicillium chrysogenum*; ET, ethylene; ETI, effector-triggered immunity; FDR, False Discovery Rate; FC, fold change; FPKM, fragments per kilobase of exon per million mapped reads; GO, Gene Ontology; JA, jasmonic acid; KEGG, Kyoto Encyclopedia of Genes and Genomes; LRR-RLK, leucine-rich repeat receptor-like kinase; m/z: Mass-to-charge ratio; NCBI, National Center for Biotechnology Information; PAMP, pathogen-associated molecular patterns; PRRs, pattern-recognition receptors; PTI, PAMP-triggered immunity; ROS, reactive oxygen species; SA, salicylic acid; SAR, systemic acquired resistance; TFs, transcription factors.

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