

ANCIENT VARIETIES OF LEGUMES: STUDIES ON THE PATHOGENESIS RELATED GENES -NEMATODE INTERACTIONS

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The legumes are important protein source for the human, animal and soil health. Unfortunately these crops (e.g., chickpea), present low productivity, because of several biotic and abiotic stresses typical of the semi-arid tropical regions where they are mainly cultivated.

Among biotic stresses, plant-parasitic nematodes have been estimated to be responsible for a 14% loss in annual yield.

Root-knot nematodes, included *Meloidogyne* spp., and cyst-forming nematode (*Heterodera* spp.) can attack the legumes plant roots, and their symptoms are a consistent limitation in crop production. New improved cultural management practices have been adopted, moreover studies on the systemic acquired resistance (SAR) in plants, have been routinely use for the defense status of plants.

PR proteins are the downstream components of SAR, being induced in response to attack by pathogens. Host plants are able to coordinate the expression of specific PR genes in response to infection by nematode, at the molecular level.

Interactions studies between legumes and phytoparasitic nematodes have been conducted in order to 1) find out marker genes to detect the response induced by the nematode stress, 2) identify and characterize the Pathogenesis Related genes in Apulian ancient varieties of legumes, 3) analyze the expression of PR genes by means of qRT-PCR, in response to nematode infections.