

Constitutive chemical compounds in different tissues of seven pine species and their relationship with susceptibility to pine-wood nematode (*Bursaphelenchus xylophilus*).

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ABSTRACT

Pine-wilt-disease was detected in Galicia (NW of Spain) in 2010. Two-year-old seedlings of seven pine species were inoculated with *B. xylophilus*, and three different groups were established: non-susceptible (*P. canariensis*, *P. taeda*, *P. halepensis*, and *P. pinea*); susceptible (*P. pinaster*, *P. radiata*), and highly-susceptible (*P. sylvestris*). We aimed to determine interspecific variation of constitutive compounds levels groups and species, and their relationships with nematode multiplication and mortality.

Needles of non-susceptible group had significantly less water and more Nitrogen, Potassium, Iron, and starch than the others groups; Cortex + phloem of non-susceptible group had more Nitrogen, Phosphorus, Manganese, and Starch and less Potassium, Calcium, Iron, Total polyphenols, Condensed tannins and Liposoluble substances than the highly susceptible group; xylem of non-susceptible group had more N, P, Mg, Mn, Total polyphenols, and Starch than the other groups.

Higher levels of constitutive N and/or Starch in any tissue was related with less mortality and nematode multiplication; Higher P in the three tissues was also correlated with less nematode multiplication. Moreover, Liposoluble substances, Soluble carbohydrates and Condensed tannins concentrations in the needles were negatively correlated with nematode multiplication. On the contrary, needles water and K were positively correlated with mortality and nematode invasion.

Key words: Pine wilt disease, constitutive defences, susceptibility levels, pine species, chemical compounds.