

Abstract

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 (North West 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 the interspecific variation of constitutive compounds levels, groups and species, and their relationships with nematode multiplication and mortality. Needles of the non-susceptible group had significantly less water and more nitrogen, potassium, iron, and starch than the others groups; the cortex and phloem of the 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. The xylem of the 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 tannin concentration in the needles were negatively correlated with nematode multiplication. On the contrary, in the needles, water content and K were positively correlated with mortality and nematode invasion.

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Data Availability Statement: Data available on request.