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[P71] Graft compatibility in peach: growth analysis and phenylalanine ammonia-lyase expression

Ivan S. Pereira^{1*}, Anderson C. Marafon², Angêla. C. Diniz³, Luis E. C. Antunes³, Marcos E. Prezotto¹, Luciane B. HAAS¹, José C. Fachinello¹, Ana Pina⁴

¹Departamento de Fruticultura, Universidade Federal de Pelotas (UFPel), Pelotas, Brazil

²Sistemas de Produção Sustentáveis, Embrapa Tabuleiros Costeiros (CPATC), Rio Largo, Brazil

³Departamento de Fruticultura, Embrapa Clima Temperado (CPACT), Pelotas, Brazil

⁴Unidad de Fruticultura, Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA), Zaragoza, Spain

*Email: ivanspereira@gmail.com

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The phenylalanine ammonia-lyase (PAL) is considered a key enzyme of the phenylpropanoid pathway. This pathway is responsible for biosynthesis of many secondary compounds, such as anthocyanins, flavanols and lignins. The higher level of PAL is associated with accumulation of phenolic compounds in the union of the incompatible grafts. The aim of this work was to identify incompatible combinations according to tree vegetative growth and to determine the PAL expression and activity in the bark as a biochemical indicator of graft incompatibility in *Prunus*. The study was performed two years after grafting with three rootstocks: 'Capdeboscq' (*Prunus persica* L. Batsch), 'Tsukuba 1' (*P. persica* L. Batsch) and 'Umezeiro' (*P. mume* Sieb. et Zucc.) grafted into the scion 'Chimarrita' (*P. persica* L. Batsch). The vegetative characteristics were measured and the results indicated that 'Umezeiro' rootstock induces a feeble growth of the scion resulting in the death of some trees. However, the others rootstocks tested showed a vigorous growth without dead trees through all years of evaluation. The PAL expression and activity was higher in 'Umezeiro' than in the other combinations. In conclusion, our data show that 'Umezeiro' presents high level of incompatibility with 'Chimarrita' and that the PAL gene expression and activity can be used as biochemical indicators of graft incompatibility.