DETECTION OF APOPTOTIC CELLS AT EARLY STAGES OF DIFFERENT GRAFT COMBINATIONS

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The incompatible interaction between stock and scion has been attributed to several factors, including vascular discontinuity, discontinuous formation of plasmodesmata, cell recognition problems, oxidative stress, etc. Histological studies have revealed that the delay in the differentiation of tracheary elements (TE) is associated with a decrease in the activity of programme cell death (PCD) in incompatible pear / quince combinations. The main objective of this work was the identification of PCD during growth and differentiation cell processes at the rootstock/scion interface in order to study the cellular mechanisms involved in the graft formation. To perform this work, different *in vitro* callus fusions were used from pear cvs. 'Conference' (Co) and 'William' (Wi), compatible and incompatible scion respectively, and the quince rootstock clone 'BA29'. Apoptotic cells were determined as a number of TUNEL positive cells counted at the graft interface in homo- and heterografts. DNA fragmentation was observed at the contact surfaces at 0, 10 and 21 days after grafting, indicating that these cells undergo PCD. Besides, the results revealed a greater number of cells containing TUNEL positive nuclei in the contact surface of the compatible combinations against incompatible at 10 days after the union. Therefore, the key events associated with the process of programmed cell death occur in combinations of pear / quince during the second week after the establishment of the union.

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