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Marc Lahaye

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The role of microstructure and cell wall chemistry on the texture of tomato pericarp tissue
Lahaye M
INRA BIA, rue de la Géraudière, 44316 Nantes, France.

Fleshy fruit mechanical properties responsible for texture involve a number of factors at different scales (histology, cell turgor, cell wall chemistry and organization), different catalytic effectors (enzymes, proteins, radicals) coded and regulated by a large number of genes and under developmentally orchestrated complex dynamics. As a whole, these parameters and variables are difficult to integrate and model. In order to better understand the relationships between fleshy fruit microstructure, cell wall chemistry and mechanical properties, we engaged in a series of studies aiming at better understanding the development of cell walls in tomato pericarp tissue at different scales in relation with mechanical characteristics. For this purpose methods for the screening of histological parameters and cell wall chemistry have been developed and applied to the study of pericarp tissue of texture from contrasted tomato lines. This presentation will summarize recent results obtained on the dynamic of cell wall polysaccharides during developing tomato and on the impact of mutations affecting texture on tissue microstructure and cell wall chemistry.