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Genetic variability in apricot cell wall texture components

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Genetic improvement of fleshy fruit organoleptic characteristics by marker assisted selection requires that the variation of pertinent traits be quantitatively measured in hybrid progenies. Concerning texture, sensorial perceptions result from complex combinations of variables affecting fruit mechanical properties among which are tissue histology and cell wall chemistry. The variability of the latter factors have rarely been studied in apricots and are now reported from several genotypes: Harogem, Goldrich, Hargrand, Iranien, Moniqui, Orangered, Stark Early Orange, Ravicille and Rouge du Roussillon.

Materials and methods
Compression tests were realized at 20 mm/min with a 1KN sensor on 0.9 cm diameter cylinders sampled at the equator of one cheek of the fruit. A cube of ~1-1.5x0.5 cm surface area was sampled from the other cheek at the equator for histology characterization. Sectioning, image acquisition and treatment followed Devaux et al (2008). The rest of the fruit was freeze-dried and cell wall were prepared as alcohol insoluble materials. Sugar composition and β-glucanase hydrolysis for fine structural analysis of hemicelluloses was done as described (Quemener et al. 2007). Hemicellulose oligosaccharides were characterized on a M@ALDI-LR Waters using DHB-6ATT matrix (Lewandrowski et al. 2005). Data treatment and statistics were done on MATLAB (histology) and R. Number of fruits (n) is indicated in figures.

Conclusions
• large variability in compression behavior, histological and cell wall chemical characteristics among apricot genotypes
• relations between these variations with texture and ripening status remain to be established
• tools are available to quantify variations of cell wall components of texture in fruit collections