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Data Article

Extraction, texture analysis and polysaccharide epitope mapping data of sequential extracts of strawberry, apple, tomato and aubergine fruit parenchyma

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A R T I C L E I N F O

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A B S T R A C T

The data included in this article are related to the research article entitled "Disentangling pectic homogalacturonan and rhamnogalacturonan-I polysaccharides: evidence for sub-populations in fruit parenchyma systems" (Cornuault et al., 2018) [1]. Cell wall properties are an important contributor to fruit texture. These datasets compile textural and immunochemical analysis of polysaccharides of four economically important fruit crops: tomato, strawberry, aubergine and apple with contrasting textures and related taxonomical origins. Cell wall components and their extractability were assessed using characterized monoclonal antibodies. In addition, textural data obtained for the four parenchyma systems show variations in the mechanical properties. The two datasets are a basis to relate cell wall composition and organization to the mechanical properties of the fruit parenchyma tissues.

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Specifications Table

Subject area	*Biology*
More specific subject area	*Plant physiology*
Type of data	*Table, Figures*
How data was acquired	*Texture analysis by texturometer through the uniaxial compression test* *Immunochemical data were obtained by ELISA*
Data format	*Raw data and analysis*
Experimental factors	*Portions of fruit parenchyma were cut and analyzed with a texturometer. Fruit cell wall polymers were sequentially extracted from parenchyma with water, CDTA, Na_2CO_3 and KOH. The cell wall fractions were analyzed by ELISA to reveal partial compositions. Relationships among textural features, taxonomical origin and cell wall composition were determined.*
Experimental features	*Texturometer analysis of fruit parenchyma.* *Cell Wall extraction yields.* *ELISA of sequentially extracted cell wall polysaccharides using characterised monoclonal antibodies against pectic homogalacturonan, pectic rhamnogalacturonan-1, xyloglucan and heteroxylan.*
Data source location	*University of Leeds, Leeds, UK*
Data accessibility	*Data are presented in this article*

Value of the data

- Data comparing cell wall composition and extractability of four fruits with high commercial values: tomato, strawberry, aubergine and apple.
- Texture analysis of tomato, strawberry, aubergine and apple parenchyma systems included Hardness (N) and Elastic modulus (kPa) and differences depending on the choice of textural parameter are compared.
- Novel data available for the cell wall composition of aubergine fruits. This dataset presents the cell wall constituents and mechanical properties of aubergine fruit parenchyma systems.

1. Data

1.1. Texture analyses and cell wall extractability of the four fruits

See Table 1: Analyses of parenchyma texture of four fruits using a texturometer. Aubergine and apple have the firmest textures, measured as the maximum force withstood by the tissues, (41 and 30 N respectively) as opposed to 7.9 and 0.7 N for tomato and strawberry. By contrast, according to the elastic modulus (*E*), apple is the stiffer tissue, followed by aubergine, with tomato and strawberry as the softer tissues. Regarding % Brix (a ripening related parameter) strawberry and apple had the highest content of soluble solids, and tomato and aubergine have a similar lower value below 4.5%. Regarding the moisture content (%), this was higher in tomato and aubergine (~93%) in contrast to the ~85% obtained in strawberry and apple. Both ripening parameters combined relate to the typical sweeter taste of strawberry and apple in contrast to tomato and aubergine that are usually considered vegetables.

Fig. 1A includes a typical stress-strain curve for each fruit species. The aubergine profile has its only peak force at maximum strain, which is considered as hardness (*H*) (Fig. 1C), drawing a curve quasi exponential without any bioyield or rupture points (see Fig. 1B for clarification of bioyield and rupture points). In contrast, when firmness is determined by the elastic modulus (*E*) (Fig. 1A), apple is

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