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**Workshop: Fruit Structure**

Poster title: AFM study of strawberry pectin nanostructure and its relevance on fruit texture

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Abstract:

Atomic force microscopy (AFM) has been used to characterize the nanostructure of cell wall pectins during strawberry fruit growth and ripening, as well as in transgenic fruits with pectinase genes down-regulated. This technique allows the imaging of individual polymers at high magnification with minimal sample preparation.

AFM studies during fruit development show that pectin size, ramification and aggregation is reduced in ripe fruits. Additionally, transgenic lines with different pectinase genes downregulated (polygalacturonase, pectate lyase and B-galactosidase) also show a more complex pectin nanostructure, including longer chains, higher branching degree and larger presence of aggregates. In all those cases the higher pectin complexity at nanoscale correlates with a reduced softening in strawberry fruits at macroscale level.

Globally, our results support the key role of pectins in fruit structure and highlights the use of AFM as a powerful tool to gain insights about the bases of textural fruit quality not only in strawberry, but also in other commercial crops.

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