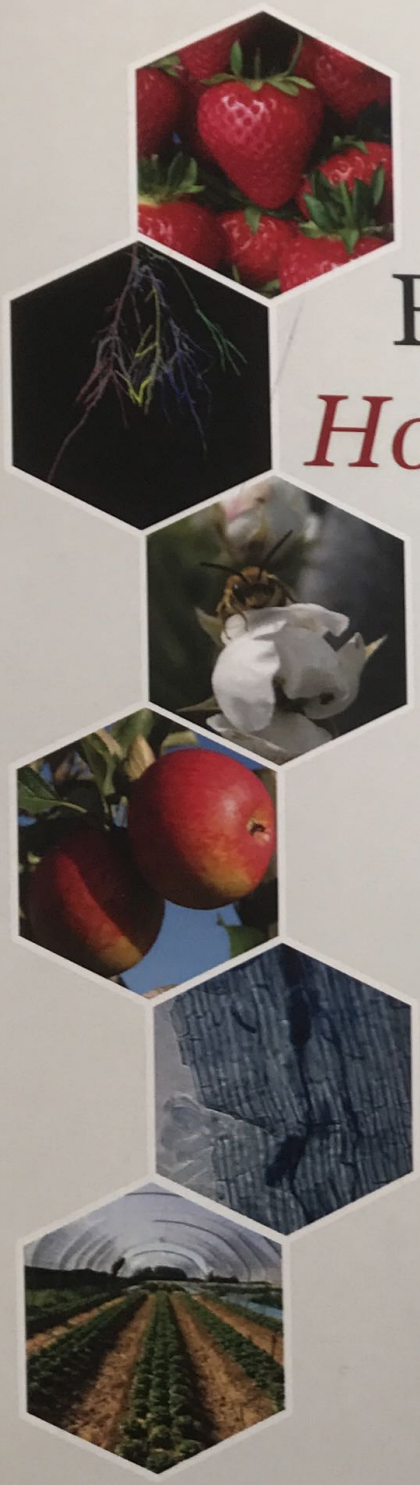

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O 2-8 QTL Mapping for Fruit Quality Traits in the Cultivated Octoploid Strawberry (*Fragaria x ananassa*)

Francesco Emanuelli, Paolo Martinatti, Matteo Ajelli, Marcella Grisenti, Brian Farneti, Lara Giongo

Fondazione Edmund Mach, Italy

Fruit quality represents an essential factor driving consumers' appreciation and it is therefore one of the major target in ongoing breeding programmes for strawberry. Several phenotypic traits contribute in defining strawberry fruit quality: chemical composition, flavor and texture. Among all the quality attributes of strawberry, fruit texture is gaining in the recent times more and more importance and interest. Fruit texture properties strongly determine the shelf life, frequency of harvest, postharvest deterioration, transportation and storage of the commercialized berries. Unfortunately, the genetic basis determining fruit texture characteristics in strawberries are still unknown and part of this lack of knowledge is depending on the elaborate physiological nature. Texture, indeed, can be described as a complex feature composed of mechanical properties relying on the modifications occurring in the cell wall during fruit softening and ripening. In order to decipher the genetic determinants of fruit quality traits in cultivated strawberry a QTL mapping analysis was performed on a octoploid strawberry segregating population including a 85 full-siblings F^1 progeny from a cross between the varieties 'Darselect' and 'Monterey'. This population was previously genotyped (Sargent *et al.*, 2016) by using the Axiom® IStraw90® array for linkage map development. The population was phenotypically investigated during two years (2014-2015) and a third year is currently under evaluation. Fruit quality was investigated in homogeneous strawberries sampled at the ripening stage. Thus, berries chemical characteristics (total soluble solids, sugar concentration, pH and titratable acidity), and berry texture parameters defining the force displacement profile (maximum force, final force, area, maximum deformation, minimum deformation, maximum force strain, and gradient) have been measured for all the progeny individuals and parental genotypes. The QTLs study was performed by SIM and CIM analyses on the parental as well as the co-integrated maps. Some QTLs for fruit-quality traits were thus identified and in some cases they could be located on the same homoeologous groups found in previous studies. In particular, regarding fruit texture parameters, QTLs for the maximum force, final force, area and gradient (elasticity module) were found co-localizing with already described QTLs as well as mapping in up to now unreported genomic position. Ongoing work is focused on better characterizing the QTLs identified and to evaluate the GxE interactions and their stability across years, by checking an additional ripening season. These results underline the importance of a better dissection and definition of fruit texture and support the interest of traits association in different genetic backgrounds and utility in multiple breeding programmes.