

12 Aroma map in European woodland strawberry

Urrutia M¹, Meco V¹, Martín Pizarro C¹, Trapero A¹, Pillet J¹, Rambla J², Toivainen T³, Granel A², Hytönen T³, **Pose Padilla D¹**

¹Laboratorio de Bioquímica y Biotecnología Vegetal, Instituto de Hortofruticultura Subtropical y Mediterránea (IHSM), Universidad de Málaga, Consejo Superior de Investigaciones Científicas. Departamento de Biología Molecular y Bioquímica. Facultad de Ciencias, Universidad de Málaga, ²Instituto de Biología Molecular y Celular de Plantas (IBMCP), Universidad Politécnica de Valencia (UPV), Consejo Superior de Investigaciones Científicas (CSIC), ³Department of Agricultural Sciences, Viikki Plant Science Centre, University of Helsinki

Woodland strawberry (*Fragaria vesca*, 2x) is a wild, diploid ancestor of the cultivated strawberry (*Fragaria × ananassa*, 8x), the most economically important berry crop. *F. vesca* is very appreciated for its intense fruity aroma, characterized by a unique combination of volatile compounds, which are absent, or accumulated at lower rates, in the commercial strawberry varieties. In addition, *F. vesca* presents a wide genetic diversity and it is naturally distributed across Europe. Our aim is to describe the genetic and organoleptic diversity of European woodland strawberry and decipher the genetic control of its characteristic volatile compounds. A collection of 199 accessions representing the European genetic diversity of *F. vesca* has been re-sequenced obtaining a set of 1.8M SNPs. In addition, the volatilome of ripe fruits was quantified in two independent harvests by GCMS providing a set of 100 unambiguously identified compounds.

This study has revealed genetic and metabolic differences between subpopulations with different geographical origin. In addition, Genome Wide Association Analysis has revealed genetic regions significantly associated to the accumulation of several metabolites that contribute to strawberry aroma, such as terpenes (α -farnesene, β -pinene, β -terpineol, linalool, myrtenol), lactones (g-decalactone), eugenol and mesifurane among others.