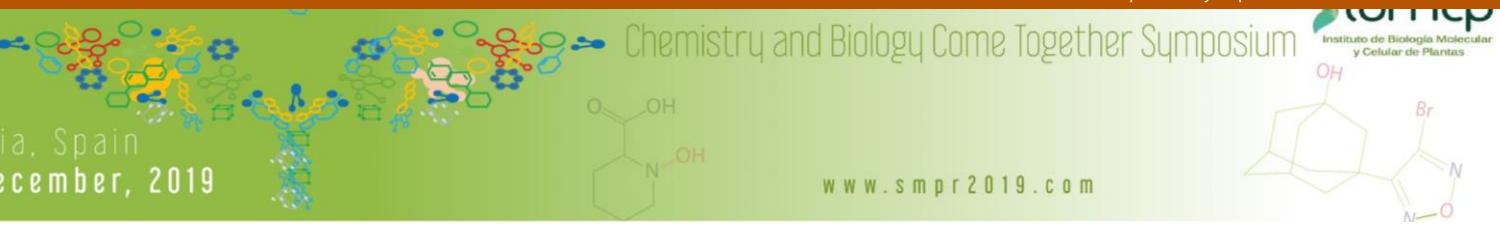

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Aroma map in European woodland strawberry

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Woodland strawberry (Fragaria vesca, 2x) is a wild, diploid ancestor of the cultivated strawberry (Fragaria □ annassa, 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 (□-farnesene, □-pinene, □-terpineol, linalool, myrtenol), lactones (g-decalactone), eugenol and mesifurane among others.