Aroma map in European woodland strawberry

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Woodland strawberry (Fragaria vesca, 2x) is the diploid closest ancestor of the cultivated strawberry (Fragaria ´ annassa, 8x) and the model species for genetic studies in the Fragaria genus. It is naturally distributed all across Europe and it is appreciated for their delicate aroma and flavor. Aiming to describe the genetic and organoleptic diversity of European woodland strawberry and decipher the genetic control of its characteristic volatile compounds, we have sequenced and metabolically-phenotyped a diverse collection of 199 geographically distant European accessions. The metabolic profiling of the lines includes a set of 100 unambiguosly identified volatiles.

This study has revealed genetic and metabolic differences between subpopulations with different geographical origin. In addition, Genome Wide Association Analysis points to several candidate genetic regions controlling the accumulation of volatiles compounds sharing common biosynthetic pathways. Specifically, we have detected SNPs associated to the accumulation of methyl ketones and their corresponding alcohols mapping to a small region of chromosome 4 with a reduced set of candidate genes.