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#### Self-compatibility in local Spanish sweet cherry (*Prunus avium* L.) cultivars

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Sweet cherry is a self-incompatible species, which exhibits S-RNase based gametophytic self-incompatibility. Self-compatibility is a relevant trait in sweet cherry breeding but all self-compatible commercially cultivated varieties derive from a unique ancestor, implying the need to identify and characterize new sources of self-compatibility in order to increase the genetic base of self-compatible sweet cherry cultivars. In Spain spontaneous self-compatible cultivars are grown locally. This type of self-compatibility is being studied with the aim of designing tools that allow its early selection in breeding programs and with the aim of deepening our understanding of self-incompatibility in *Prunus*. Molecular and genetic analyses have allowed determining that this type of self-compatibility is caused by breakdown of the pollen function, but that it is not linked to the S-locus. The S-locus genes *S-RNase* and *SFB* do not show structural or transcriptional differences when compared with self-incompatible genotypes with the same S-genotype. Linked markers to this trait have been identified and mapped in the lower region of linkage group 3 of the sweet cherry linkage map, whereas the S-locus is located in linkage group 6. These results and recent findings on the dynamics of self-compatible pollen tube growth will be discussed in the context of the current knowledge of self-incompatibility in *Prunus*.