

VIII. Symposium–“Sporophytic & Gametophytic self-incompatibility”

8.1 A recently active *Prunus*-specific Mutator transposable element induced self-incompatibility in apricot

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Self-incompatibility is a widespread mechanism in *Prunus* fruit trees to prevent self-fertilization. However, self-compatible apricots are predominant in Western Europe, a phenotype associated with a small insertion in the *S*-haplotype-specific *F*-box (*SFB*) gene responsible for the sexual incompatibility function of pollen grains. We have analyzed several self-compatible accessions growing in the regions of Hungary and Morocco. Interestingly, we have found one allelic variant containing a double copy of the insertion in the *SFB* gene in a nested arrangement. The accessions carrying this variant were proved to be self-compatible. The molecular analysis of the inserted sequence revealed that its structural features (its 349-bp size, 82-bp terminal inverted repeats and 9-bp target site duplications) are consistent with this transposable element being a putative member of the Mutator-like transposase superfamily. The element was provisionally labelled as *FaSt* (*Falling Stone*). *FaSt* showed a preferential accumulation in the short AT-rich segments of the euchromatin region of the peach genome. The structure and emergence of the nested insertion suggest within-locus integration in response to abiotic stress conditions characteristic of the Moroccan oases where these plants have been sampled. A bioinformatics based survey of the known *Rosaceae* and other genomes and a newly designed PCR-assay verified the *Prunoideae*-specific occurrence of *FaSt* elements. Phylogenetic analysis and history of the oasis agro-eco-systems suggest a recent activity of this element in the *Prunus* genome. This study reports on a presumably active non-autonomous transposable element in apricot that has exhibited a marked indirect genome shaping force due to the breakdown of the self-incompatibility barrier.

Keywords : *S*-haplotype-specific *F*-box (*SFB*) gene, *Prunoideae*-specific, falling stone (*FaSt*)