

Self-incompatibility and *S*-allele identification in new apricot cultivars

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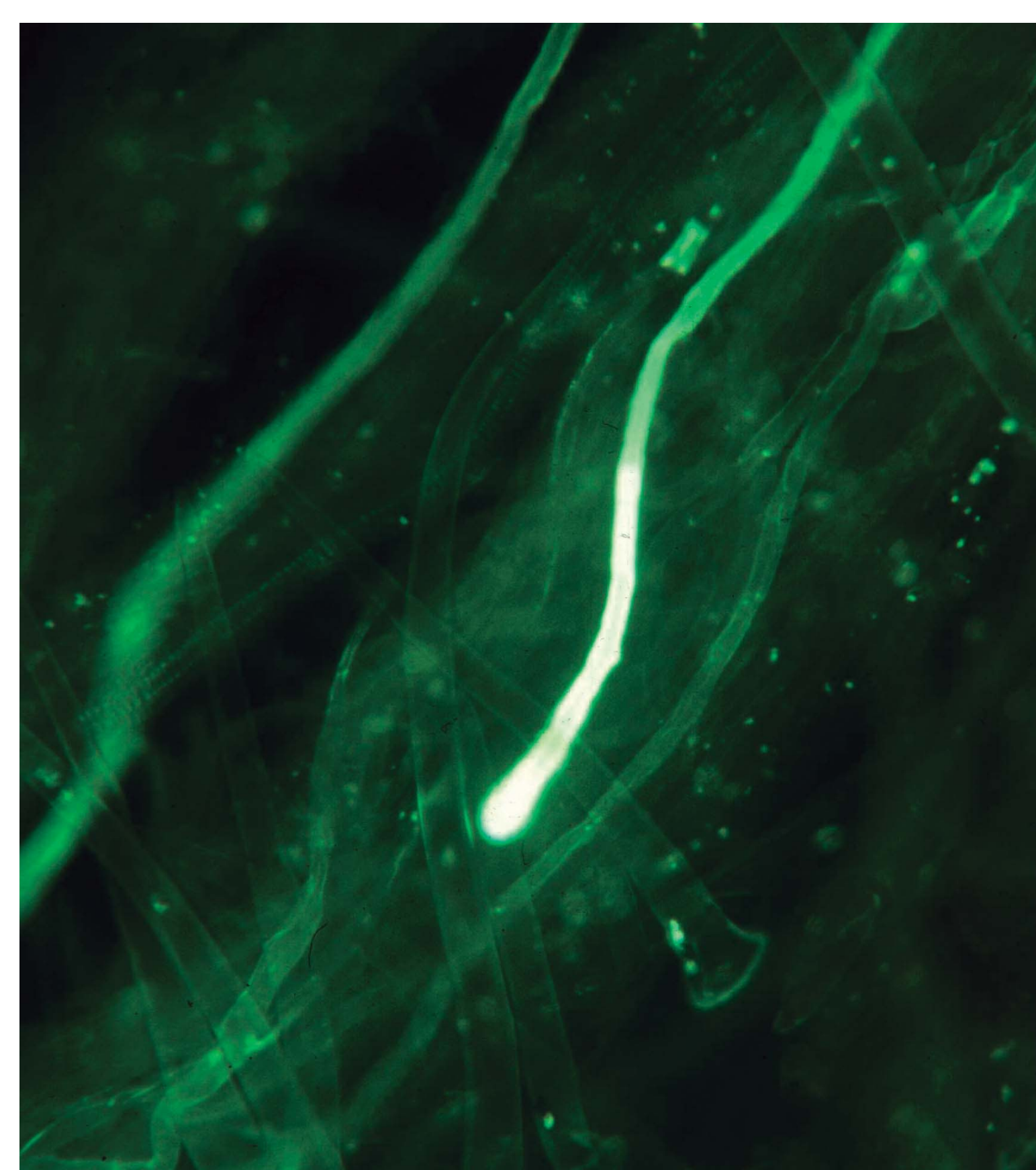
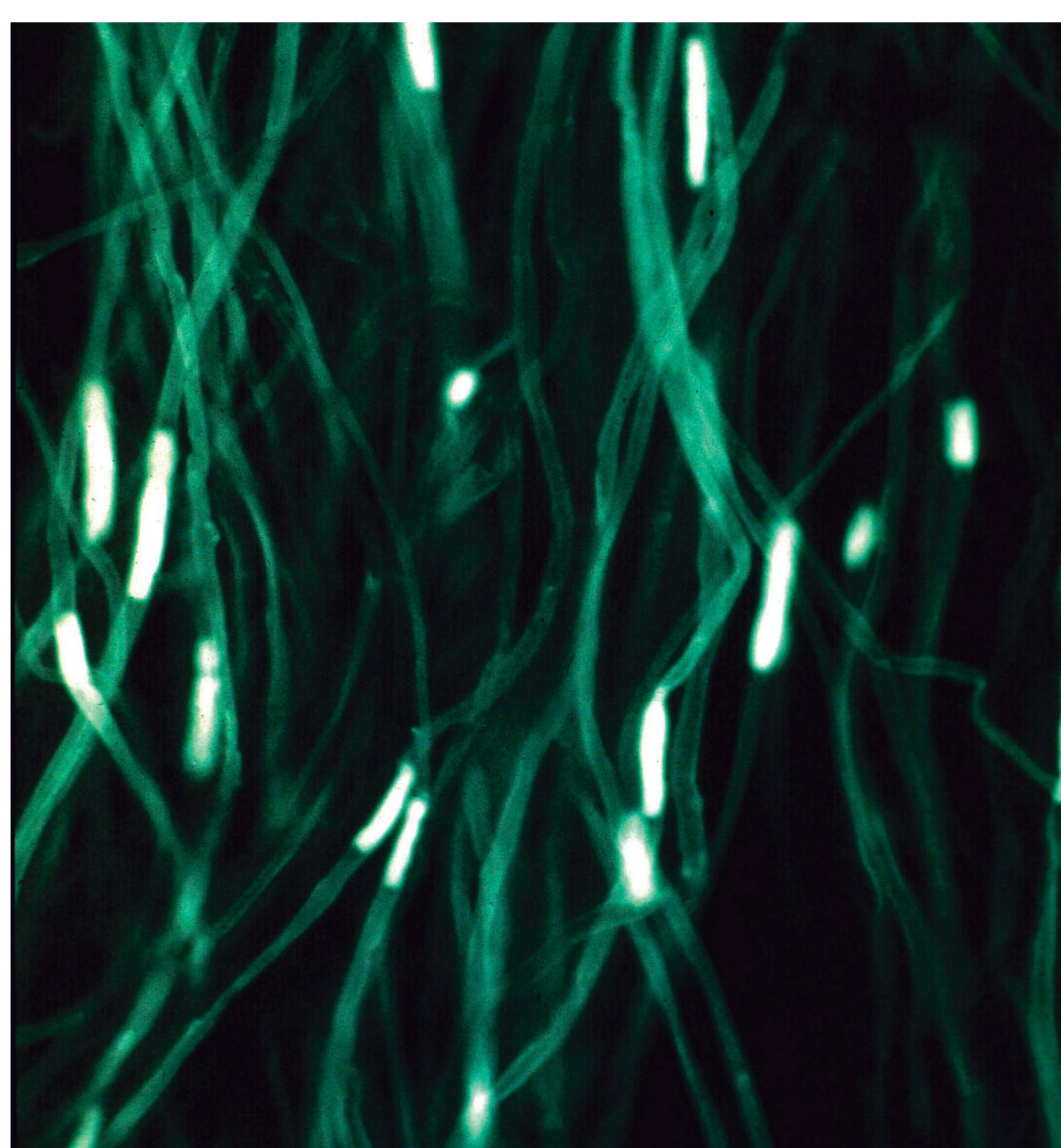


In the last years, an important renewal of plant material is taking place in apricot, with the introduction of new cultivars from different breeding programs. However, the pollination requirements of many of these cultivars are unknown. In this work, the self-(in)compatibility and the *S*-alleles have been studied in a group of 40 apricot cultivars. Self-compatibility was determined by the observation of pollen tube growth under the microscope in self-pollinated flowers. The *S*-allele of each cultivar was identified by PCR analysis.



SELF-(IN)COMPATIBILITY

In self-compatible cultivars pollen tubes grew along the style and could be observed reaching the ovary. On the other hand, in self-incompatible cultivars, pollen tube growth was arrested in the style and no pollen tubes reached the base of the style.



Self-compatible cultivars		Self-incompatible cultivars			
ASF0404 ¹	Mitger ¹	ASF0401 ¹	Goldrich	Magic Cot ¹	Stark Early Orange
Canino	Palstein	ASF0402 ¹	Goldstrike	Moniqui	Stella
Corbato ¹	Paviot	ASF0405 ¹	Harcot	Muñoz ¹	Sunglo
Early Queen ¹	Soledane ¹	Aurora	Hargrand	Pandora ¹	Tomcot ¹
Golden Sweet ¹	Tadeo	Bergarouge	Henderson ¹	PerleCot ¹	Veecot
Katy	Westley ¹	Durobar ¹	JNP ¹	Pinkcot ¹	Wondercot ¹
Lorna ¹		Gold Bar ¹	Lilly Cot ¹	Robada ¹	

¹ Self(in)compatibility first reported in this study

S-ALLELE IDENTIFICATION

PCR analysis using primers SRc-F/SRc-R from the first intron and Pru-C2/Pru-C4R from the second intron of apricot *S*-RNase were used to identify the *S*-genotype of each cultivar. 8 different *S*-alleles were identified. Two of them showed a band size for the first intron of 420 bp and 430 bp, which were provisionally named *S_x* and *S_y*.

<i>S</i> -genotype	Cultivars
<i>S₇S₂</i>	Goldrich, Hargrand
<i>S₇S₄</i>	Harcot
<i>S₇S_x</i>	Aurora ¹ , Goldstrike ¹ , Tomcot ¹
<i>S₂S₃</i>	Sunglo
<i>S₂S_y</i>	Veecot ¹ , Pandora ¹ , ASF0401 ¹ , Bergarouge ¹ , Moniqui ² , Muñoz ¹ ,
<i>S₂S_x</i>	Magic Cot ¹
<i>S_cS_x</i>	Pinkcot ¹
<i>S₃S_c</i>	PerleCot ¹
<i>S₃S_x</i>	Henderson ¹ , Durobar ¹
<i>S_yS_c</i>	Robada ¹
<i>S_xS_y</i>	ASF0402 ¹ , ASF0405 ¹ , Gold Bar ¹ , JNP ¹ , Lilly Cot ¹ , Stark Early Orange ¹ , Wondercot ¹ , Stella ¹
Self-compatible cultivars	ASF0404 ¹ (<i>S_c</i>), Canino (<i>S₂S_c</i>), Corbato ¹ (<i>S_c</i>), Early Queen ¹ (<i>S₇S₂</i>), Golden Sweet ¹ (<i>S₃</i>), Katy ² (<i>S₇S₂</i>), Lorna ¹ (<i>S₇S₂</i>), Mitger ¹ (<i>S_c</i>), Paviot ¹ (<i>S₂S_c</i>), Palstein ² (<i>S₇S₂</i>), Soledane ¹ (<i>S_c</i>), Tadeo ¹ (<i>S_c</i>), Westley ¹ (<i>S₇S₂</i>)

¹ *S*-RNase genotypes first reported

² *S*-RNase genotype reported herein differs from that reported in other studies

The results allowed to determine 13 self-compatible and 27 self-incompatible cultivars. The *S*-genotypes identified include 32 cultivars of previously unknown *S*-genotype. 8 new incompatibility groups have been identified. This information will be valuable for the selection of parental genotypes in breeding programs and for the appropriate association of cultivars in commercial orchards.

ACKNOWLEDGEMENTS

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