DIFFERENTIAL GENE EXPRESSION ANALYSIS TO INVESTIGATE SPOROPHYTIC SELF-INCOMPATIBILITY IN *CORYLUS AVELLANA* L.

BELTRAMO C., TORELLO MARINONI D., BOTTA R.

Department of Arboriculture and Pomology, University of Turin, Via Leonardo da Vinci 44, 10095 Grugliasco, Italy

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The European hazelnut (*Corylus avellana* L.) is a monoecious tree and exhibits sporophytic self-incompatibility (SSI). Self-incompatibility (SI) is a genetic system that prevents the self-fertilization, allowing the pistil to reject the pollen of genetically close individuals and limiting therefore the possibility of crossing between individuals. Therefore the choice of pollinizers is critical for assuring good and constant yield; SII in this species is therefore an important aspect to be considered in breeding programs for orchard planting.

Sporophytic self-incompatibility is controlled by a single multi-allelic locus, the *S* locus. The involved molecular mechanisms are well known only in *Brassicaceae*, although SSI is present also in *Asteraceae*, *Betulaceae*, *Caryophyllaceae*, *Convolvulaceae* and *Sterculiaceae*.

Studies on gene regulation of fertility, pollination and fertilization in hazelnut are very few; therefore with this research we propose to contribute to the knowledge about the genetic bases of flower biology of hazelnut.

At a first stage, homologies between the *S* locus of *Brassica* and *Corylus* were sought using degenerated primers, but without success.

Therefore, the Differential Display technique was applied for the study of the female determinant of self-incompatibility. Two developmental stages of female flower buds were compared: before styles emergence and at full bloom. Partial sequences of genes that may be involved in the mechanisms of pollen recognition, signal transduction and flower development were isolated and identified after blasting in TIGR and NCBI databases. Among the isolated sequences, one was identified so far as being from a putative peroxidase gene that was eventually fully characterized and is described as a class III peroxidase.

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