

**P0914****Association Mapping Analysis for Chemical and Physical Traits in Almond**

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Room:

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A total of 98 almond accessions, representative of the diversity of almond across the five continents, were included for chemical and physical association mapping analysis using 40 microsatellite markers. Structure analysis showed a strong subpopulation structure and linkage disequilibrium decaying with increasing genetic distance and, consequently, lower levels of linkage disequilibrium were found between more distant markers. A significant impact of the population structure on linkage disequilibrium in the almond cultivar groups was observed. The mean r^2 value for all intrachromosomal loci pairs was 0.040 and the r^2 value for the interchromosomal loci pairs was 0.036. The results of association mapping for almond nut and kernel traits using a genome-wide association map showed that the number of associations was reduced to 50 for chemical traits and to 32 for physical traits after the Bonferroni procedure. The maximum number of associations found among the chemical parameters was located in the linkage group 4 with five associations, and the maximum number of associations found among the physical traits was also in the linkage group 4 with four associations. This study reports for the first time in almond the possibility of association mapping between genotypes and kernel quality traits by using molecular markers in a germplasm collection.

Back to: [Genome Mapping, Tagging & Characterization: Fruit Species - Even](#)

[<< Previous Poster](#) | [Next Poster >>](#)

[Home/Search](#)

[Browse by Type](#)

[Author Index](#)

[Poster Categories](#)

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Where:

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