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POSTER - Diversity In Melon Flesh Color: Tools For Genetic Analysis.

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One of the processes that occur during melon fruit ripening is β-carotene accumulation, providing the characteristic orange flesh color of most of the cantalupensis cultivars. However, flesh color is one of the most variable traits in this species, and cultivars with dark to light orange, salmon, white, green or even yellow flesh also exist. The content in carotenoid compounds was measured in 90 different genotypes representing the diversity of the species. Total carotenoids were extracted from frozen melon fruit flesh and individual carotenoids were then separated by HPLC and quantified.
The most abundant carotenoid was β-carotene. As it was expected, the orange colour of the fruit flesh from most cantalupensis coincided with the highest levels of β-carotene. Interestingly some Italian and French landraces had higher β-carotene amounts than commercial cultivars. Also significant amounts of other carotenoids, such as lutein and β-cryptoxanthin were found in these and other exotic accessions, belonging to the ameri and conomon groups. ß-caroten and ß-cryptoxanthin show provitamin A activity, and lutein plays a role in preventing macular degeneration. Therefore, this germplasm collection, comprising such variable accessions in caroteinoids content, represents a valuable reservoir to add nutritional value to the melon commercial cultivars. Most of the analyzed genotypes were resequenced recently and the population structure has been studied. SNPs in many genes involved in the carotenoids metabolic pathway are available today and further related studies can be performed.