

Effect of bHLH gene regulators of anthocyanin pathway of wild strawberries (*Fragaria vesca* L) in the polyphenol content on commercial strawberries fruit (*Fragaria x ananassa*)

Andrea Lorena Herrera V¹, Stefan Martens¹, Katja Schulenburg², Antje Feller¹, ¹ Fondazione Edmund Mach, Department of Food Quality and Nutrition, Via E. Mach, 1 38010 S. Michele all'Adige, Italy, lorena.herrera@fmach.it, ² Technische Universität München

The cultivated strawberry (*Fragaria x ananassa*) is one of the most important berry of the market not only during the summer period of the northern hemisphere, but all year around, world wide; being Italy one of the top producer countries in the EU. Red coloration on berry fruits is due to the presence of anthocyanin pigments mainly produced during the late stages of the fruit maturation process and is an important phenotypical feature. In the past years the interest on anthocyanins and other phenylpropanoids compounds has increased due to their antioxidant properties, for which beneficial health effects were found in both *in vitro* and *in vivo* systems, making plant breeders around the world consider these plant metabolites as an important trait to follow up.

As part of the MYB-bHLH-WD40 complex bHLH transcription factors play an important role in phenylpropanoid biosynthesis by their effect on the regulation of genes involved in the pathway of these compounds, This transcription factor complex has been characterized in several crops from diverse families, including some Rosaceae species, and is also involved in the biosynthesis of polyphenols (1).

The aim of this study is to evaluate the role of bHLH transcription factors in the biosynthesis of the broad group of polyphenols including anthocyanins and proanthocyanidins and ellagitannins. We achieve this goal by performing agro-infiltrations on immature fruits of the cultivated strawberry *Fragaria x ananassa* (2) with constructs that are designed to silence bHLH candidate genes of the wild species *Fragaria vesca*. Obtained fruits were further investigated on their effect on polyphenols biosynthesis by methanolic extraction, and detection by targeted UHPLC-MS/MS (3).

References:

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