



Influence of genetic, epigenetic, agricultural and post-harvest factors on the production of Rose and Geranium Essential Oils.

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Hybrids of *Pelargonium* with a rose scent, originated from South Africa, were created during the 18th century and are cultivating around the world for the production of essential oil (EO) (1). *Rosa damascena* is originated from Syria, and is cultivated for its EO in Asia Minor since the 15th century. Both vegetal are producing a rose smell EO containing similar molecules (geraniol, citronellol) but synthesized through a different way. When the *Pelargonium* is using a classic terpene synthase to produce geraniol (unpublished result), the rose is using a completely different and unique way to do that (2). The storage and emission are also different. *Pelargonium* stores its EO in glandular trichomes located at the leave surface (3) which has the consequence to be repellent to the predator insects. On the contrary, Rose fragrance molecules are produced and emit continuously from conical, papillate or flat shape epidermal flower cells, which have the effect to attract the pollinators (4). These fundamental differences influence deeply the EO producer to adapt his cultivation practices. Indeed, the influence of the environment parameters (soil, temperature...) is crucial as the cultivation, harvest practices and the logistic around the crop. All these parameters are forming a chain that it is necessary to manage and understand deeply each link in the chain to develop the best product.

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