

# **Aroma Evolution during Flower Opening in *Rosa damascena* Mill.**

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The changes of aroma ingredients during the process of flower opening from Bulgarian rose were monitored by head space method and solvent extraction. We also analyzed contents of glycosidic alcoholic aroma together with activities of the hydrolytic enzymes throughout the flower development and the opening.

At flower petal opening time, the total amount of aromas in the head space gas reached the highest level. The concentration of citronellol was abundant in the head space gas at this stage, whereas the concentration of 2-phenylethanol became higher than that of citronellol 4 hr after the opening stage. In the volatile extracts, higher accumulation was observed in 2-phenylethanol than those of monoterpenoids at this stage, and the content of the former still increased after flower opening. Glycosidic citronellol, geraniol, and other monoterpenes started their accumulation just before flower opening stage and then reached the maximum level. The amount of these glycosidic compounds were less than those in the volatile extracts. In contrast to the monoterpenes, 2-phenylethyl glycosides accumulated in a higher level than in the volatile extracts starting at least 12 hr before the opening stage. The amount of the glycosidic precursors of 2-phenylethanol detected in the rose petals before flower opening always was higher than the amount of 2-phenylethanol which was released later. The decline of glycosidic 2-phenylethanol at flower opening stage may be due to partial enzymatic hydrolysis. Thereafter a drastic decline was observed, indicating that rapid enzymatic hydrolysis occurred during these stages.