

**Title** Effects of changes in light quality on the aroma chemotype of Roman chamomile  
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### **Abstract**

Herbs are known to show different volatile component compositions even the same species under different cultivation conditions. Biosynthesis of volatile components is still unclear, so we are investigating the relationship between aroma chemotypes and environmental factors. In our previous experiments using Roman chamomile (*Anthemis nobilis* L.), it was found that different volatile component compositions were shown under different light quality. In this experiment, we verified our hypothesis that volatile component compositions of Roman chamomile are affected by the previous treatment of light quality. Plants were grown in the air-conditioned room to keep temperature, photoperiod and light intensity. Using the fluorescent lights of three colors such as white (W), blue (B) and red (R), each light quality was replaced every two weeks and plants were grown for six weeks. Nine plots (WWW, WBW, WRW, BBB, BWB, BRB, RRR, RWR, RBR) were made. Volatile components from stems and leaves were determined by HS-GC at the 4th week and the 6th week, and identified by GC/MS. As a result, volumes of many volatile components showed characteristic variation by changing light quality. For example, volumes of some volatile components at the 6th week of BBB and BRB were different, in spite of having been irradiated with the same light quality for the first and the last two weeks. It is indicated that the previous treatment of light quality might affect biosynthesis of some volatile components.