

## Poster

## Study of the stability and persistence of commercial perfumes under different thermal and UV-Vis light conditions.



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**Keywords:** perfume, quality, UV light, temperature, oxidation, additives, optimization.

### ABSTRACT

**Motivation:** Nowadays, the perfume industries need to be more and more competitive due to the broad offer existing in the market; For this reason they try to create quality products with optimised compositions in order to reduce the fabrication costs. In particular, the persistence of the fragrance and stability of the color are the main challenges in the quality of perfumes fabricated by Saphir Laboratories. In this work, we have studied these two properties in several perfumes from this company, stored under different aggressive conditions of light and temperature. These experiments have been done with different proportions of protective additives in order to optimize the current formulae.

**Methods:** The chemical stability against external factors such as UV light and temperature in terms of the quality and behavior of the samples was studied for several perfumes provided by the company (Saphir Laboratories). For these experiences we have used a UV-Vis lamp (LOT-Oriel) and a Cary 100 UV-Vis spectrophotometer (Agilent). Additionally, the study of the temperature was carried out by introducing the samples in a lab oven for different periods of time at different temperatures. Different proportions in the perfume composition (Natural essence, water, ethanol, antioxidant BHT, colorants and the UV filters Neosorb and Uvasorb) were used in the above experiments. Finally, the long lasting of the different perfumes was analyzed by both human tasting and an electronic nose equipment (SACMI Imola).

**Results and conclusions:** Each perfume has a different behavior, maintaining its identity from 4 to 15 hours exposed to UV depending on the perfume. Regarding the temperature, it can be concluded that at temperatures above 50 °C the chemical stability of the sample is lost. Additionally, these conditions and even lower temperatures (40°C) lead to an oxidation of the essential oils, producing rancidity of the essence, which is summarized in more intense olfactory notes with respect to the original perfumes.

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