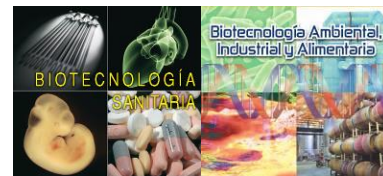

Poster

Influence of light and temperature on the stability of commercial perfumes



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ABSTRACT

Motivation: The industrial sector of perfumes lives many moments of fierce competition among related companies. Survival in this world requires of make technological advances in order to develop products that eliminate unwanted effects, include novelty, and satisfy the customer.

The way to achieve this is to do research in order to achieve added value with respect to competitors, such as image, color and design; persistence and anti-aging by oxidation of perfumes due to solar or thermal exposure.

In our case, we have perfumes from Saphir Laboratories that present problems with degradation by color, oxidation by redox processes, and low persistence. Whereby, we need to look for optimization ways in order to improve the elaboration recipe at a reduced cost.

Methods: Methods used are UV-Vis spectrophotometry using a Cary 100 (Agilent) as colorimeter for colour photodegradation and photooxidation of perfumes irradiated with a LOT-Oriel UV-vis lamp. For the persistence studies we compare results of human tastings by non-expert people and measures of intensity by changes in resistance (conductimetric) in an electronic nose powered by an electronic olfactory system software.

Results: We have studied four perfumes with color photodegradation problems with promising results. We have found the best proportion of the additives used in their composition. On the other hand, the electronic nose measurements indicate an increase of intensity of odor for samples stored at high temperatures (40°C) that has been confirmed by human tasting tests. This behaviour has been attributed to a maceration process in perfumes after thermal treatment, simulating our warm climate, given that temperature conditions do not reach 50°C at which a phase separation takes place.

Conclusions: The studies carried out have confirmed that the essential oils of perfumes are the main cause of the loss in the effectiveness of the added UV filters, producing a photodegradation of its own color; we have also achieved favorable results in possible modifications in the proportions of additives to improve the stability. On the other hand, the measures resulting from the electronic nose indicate that thermal treatment of a reconstructed perfume with the addition of ambroxane as fixative reduce the loss of volatile compounds resulting in a greater signal to that of the commercial perfume without ambroxane.

REFERENCES

- Cano, M. et al. (2011) Rapid discrimination and counterfeit detection of perfumes by an electronic olfactory system. *Elsevier.*, 156, 319-324.
Arjona, M., Pedrosa, J.M., Lopes Da Costa, T., (2014) Evaluación de la calidad de aceites de oliva virgen extra comerciales mediante sistema electrónico de olfato frente a paneles de cata oficiales. Final Degree Project, Dpto. Sistemas Físicos, Químicos y Naturales, Sevilla, España.