

ISIPCA's Smell

An Accurate Evaluation Tool Dedicated to Scent Evaluation

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Introduction

Smell is a powerful sense triggering memory, conveying emotions and defining a product signature. However, smell is as complex as it is powerful, being aware of the fact that the scent of a product set might cover a wide range of olfactory notes. In order to reveal this complexity, ISIPCA developed a 4-level wheel dedicated to scent evaluation. Odorant families i.e. "Wood" are broken down into sub-categories i.e. "Dry wood" or "Moist wood" and olfactory notes i.e. "Sandalwood" or "Patchouli".

Raw materials are used by the descriptive panel as a benchmark for the training. This poster compares the output of the "ISIPCA's smell" usage by panelists to the "free comments approaches" used by perfumers. SAM's Perceptive Sensory Mapping innovative approach correcting the redundancy bias within descriptors for a more accurate sensory mapping has been used to compare the two experimental procedures.

1. Materials and Method

PARTICIPANTS

- 10 panelists trained for 2 years regarding scent evaluation (41 to 67 years-old, women only)
- 21 future professional perfumers from ISIPCA (18 to 25 years-old, 6 men and 15 women)

PRODUCTS

Two scent compositions (one floral and one woody) are separately incorporated in to 4 matrixes/carrier: alcohol, strips, creams and softener. Compositions and matrixes were developed by ISIPCA (cream and softener have a slight scent).

EVALUATION CONDITIONS

Assessors smelled each product in closed pots or strips, each one identified with a 3-digit code. Products are presented in a sequential monadic way according to a balanced presentation design (e.g. Williams Latin square).

EXPERIMENTAL PROCEDURE: PANELISTS

Assessors are asked to evaluate each pot by checking all the terms that best describe the product, based on the "ISIPCA's smell" wheel. Up to 7 descriptors are allowed per product. Panelists were allowed to add new descriptors on wheel when needed.



EXPERIMENTAL PROCEDURE: FUTURE PROFESSIONAL PERFUMERS

Assessors are asked to evaluate each pot by a "free comments approach". No limits were placed on the olfactory description except assessors were asked to provide objective description only.



2. Results

PANELISTS

- 51 terms / descriptors were selected out of 79
- 7 new terms / descriptors were added by panelists on the ISIPCA's smell

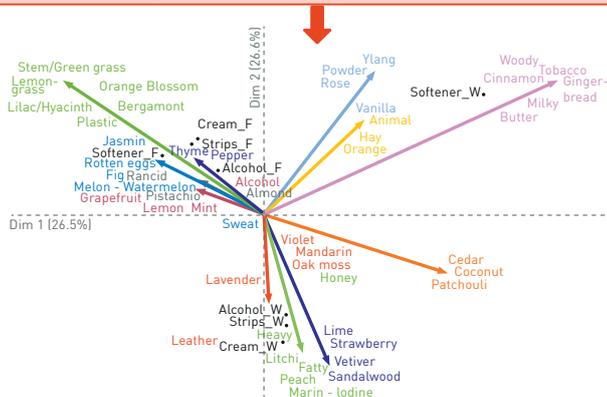


Fig 1: Perceptive Sensory Mapping from panelists' CATA session. Arrows indicate groups of redundant sensory attributes.

12 different sensory directions (non-redundant groups of sensory attributes) were expressed by the panelists to describe the product set.

Using the "ISIPCA's smell" wheel, panelists have a multidimensional perception as 5 axes of the Perceptive Sensory Mapping are necessary to express 80% of the information (inertia).

In detail: The first diagonal (top left to bottom right) opposes the 2 scent compositions – the floral one described as flower/vegetal/citrus and the woody one described as woody/fruity/milky.

The other axes of the Perceptive Mapping highlight specific composition/matrix interaction.

FUTURE PROFESSIONAL PERFUMERS

- 380 term/descriptors were generated
- 142 terms/descriptors remained after removing terms quoted only once or twice

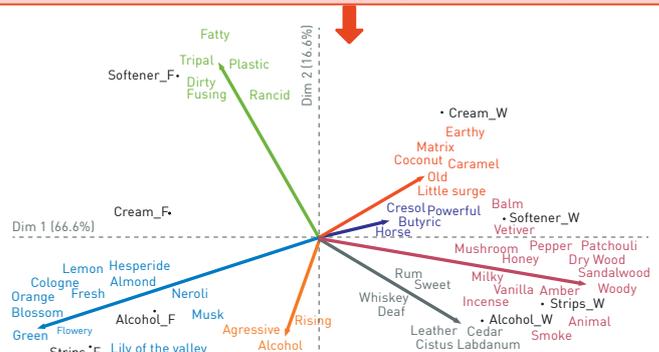


Fig 2: Perceptive Sensory Mapping from perfumers' free comments session. Arrows indicate groups of redundant comments. The displayed comments are the most representative of the group.

The future perfumers expressed 7 sensory directions via free verbalizations.

The Perceptive Sensory Mapping highlights that their understanding of the product universe is much more bi-dimensional than panelists, as 2 axes only represent almost 80% of the information (inertia).

- The first axis opposes the flowery composition to the woody one
- The second axis opposes the cream/softener matrixes to the strips/alcohol ones

Moreover, future professional perfumers have a more multifaceted description of their own sensations as they use some vocabulary from the smell but also the color, sound and texture lexicons, integrating more conceptual description ("cheap", "old", "dirty", ...).

Conclusion

Both approaches can be considered as characterizations which are close to one another (RV=0,76). However, one of them could appear as being more relevant depending on the product development process:

- The "ISIPCA's smell" appears to be more adapted to a R&D-based product development as the wheel reveals a detailed description including raw material, leading to actionable recommendations for developers.

- The "free comments approach" is more in line with a perfumer or marketing-based product development as future professional perfumers can quickly create a description of odorant products, mixing multisensory perceptions and conceptual insights.

We would like to thank the panelists and students for their participation, work and kindness: their active participation strongly contributed to the success of the project.