Perception and description of premium beers by panels with different degrees of product expertise

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Introduction

The present study compares subjects with varying degrees of product expertise, in their ability to discriminate and describe products using a Napping® test[1]. Eight premium beers were evaluated by three different panels. Two panels constituted of consumers and were split by their self-assessed product knowledge, measured by a questionnaire, into *Novices* and *Enthusiasts* (n=14 and n=26 respectively). The sensory panel at a large brewery, and a group of brewmasters constituted the third panel (*Experts*, n=15).

Methods

All three panels performed a Napping® task on the beers, followed by a descriptive task (Ultra-Flash profiling). Data were digitalized using a coordinate system, whereas descriptors were entered separately and treated as frequency table crossing products and descriptors. The position data were analyzed by Procrustes Multiple Factor Analysis[2], to derive a consensus profile, and to compare individual group configurations. ANOVA Partial Least square Regression[3] was used to test differences in use of the descriptors by the three panels, using a design matrix as predictors, and the descriptor matrix as response.

Results and conclusions

The consensus product map (Figure 1) shows product differences (two dimensions, 63% variance explained). The first MFA dimension separated the samples into two distinct groups, whereas second dimension highlighted the specificity of two of the samples (Pine and Thy Pilsner). Mean *RV* coefficients were computed to compare each panellist to the global configuration, and submitted to an analysis of variance to uncover inter-groups differences. No significant differences were found. This suggests that, unlike earlier findings[4], product knowledge does not necessarily yield higher consistency in product configuration by Napping®. In contrast, ANOVA-PLSR showed significant differences in the use of descriptors (Figure 2), particularly between *Experts* and *Novices*. To a larger extent, *Experts* used specific sensory attributes (e.g. *malty*, *ester*, *astringent*), whereas *Novices* used more abstract and integrated terms (e.g. *summer*, *heavy*, *youth*).

References:

[1] Pagès, J. (2003). Collection and analysis of perceived product inter-distances using multiple factor analysis: Application of 10 white wines from the Loire valley. *Food Quality and Preference*, *16*, 642-649.

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[3] Martens, H., & Martens, M. (2001). *Multivariate analysis of quality.* John Wiley and Sons*.*
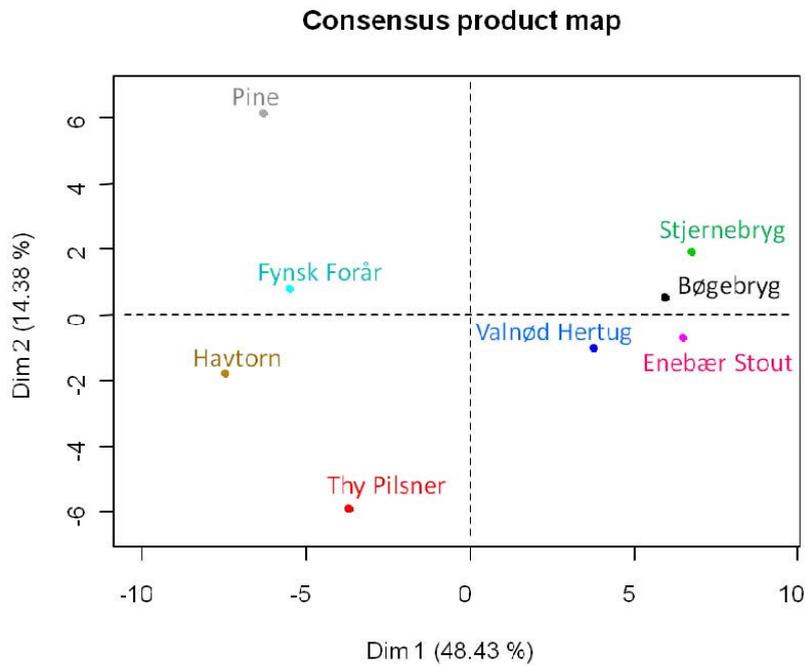
Consensus product map

Fig. 1. Consensus profile from PMFA, showing product differences of the eight beers.
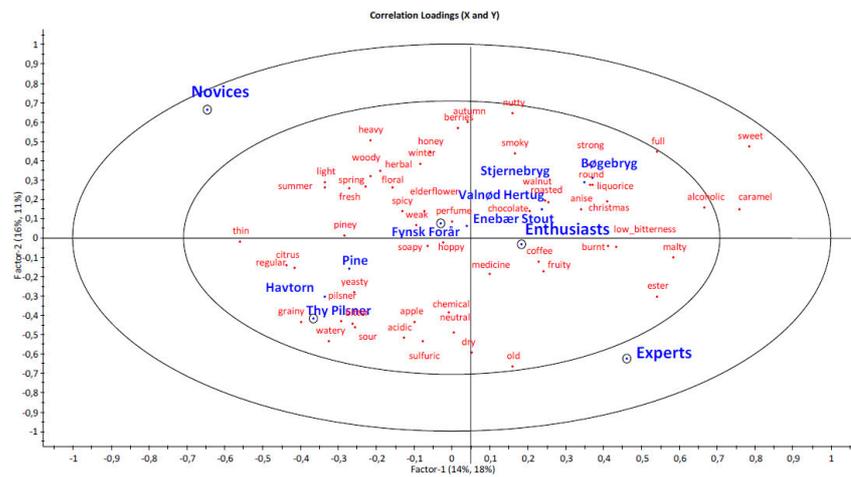

Fig. 2. Correlation loadings plot from APLSR analysis showing the significant effect of product expertise in the use of descriptors.

Keywords: Napping, Beer, Product expertise, Multivariate data analysis