Foam behaviour in "prosecco" sparkling wines and its evaluation: A statistical modelling approach

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The foam behaviour during and after pouring a sparkling wine into the glass has a basic influence on the overall quality perception for the consumer.

In this paper a statistical method, which allows to evaluate in numerical terms the behavior of the wine foam in the actual condition of pouring is described.

23 Prosecco sparkling wines of the same typology (Prosecco Extra dry) of different brands were used. Bottles (at 10°C) were opened and wines were poured into flute glasses. A digital video camera recorded the wines into the glass during wine pouring for 40 seconds starting from the beginning of pouring. Once recorded, the video clip was decomposed in frames every 2 seconds and the images were used for measurement of wine and foam heights. Measures were interpolated with a logistic curve. The data were statistically analysed in order to assess the variability among pourings, bottles, glasses and wines. A standard procedure was proposed for pouring, video recording and analysing data.

The same video clips used for foam measurements were shown on a screen (more than one time, if necessary) to 2 categories of judges: 11 judges with extensive experience and a group of 106 students. This people was asked to simply assign the Prosecco foams seen in the different videos to three quality classes: poor foam, acceptable foam and good foam.

A model based on multiple regression for predicting the score of expert judges was developed. The model was statistically significant with a $r^2 = 0.84$.

Furthermore the comparison of expert and non-expert judges scores showed a concordance for the best and worst wines but some differences in the intermediate quality foams. This means that for Prosecco wines with an average foam quality a specific model must be developed as expert judgements cannot be used for forecast those of non-experts.

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