

Preservation of “Valaisan AOC rye bread”

Influences on organoleptic properties

Methods

- Storage methods
 - Freezing process
 - Modified atmosphere packaging
 - Vacuum packaging
- Methods for monitoring organoleptic properties
 - Descriptive analytical tests
 - Consumer authenticity test

Descriptive analytical tests

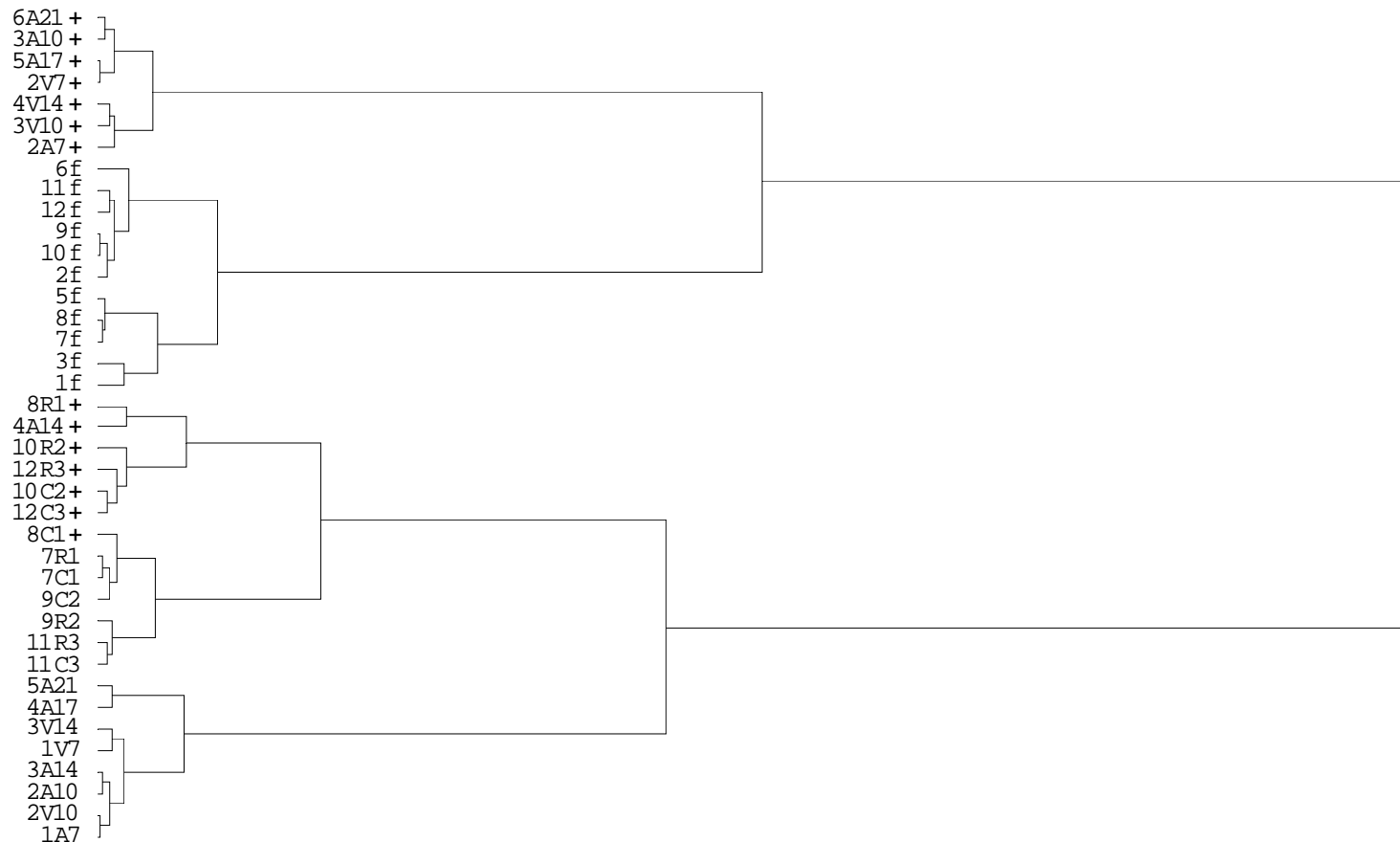
- Which organoleptic properties of rye bread change in different storage conditions?
- Definition of descriptors
- Expert coaching
- Expert monitoring of bread
- Results enhancement

Results

- Results of the descriptive analytical tests
 - Ascending hierarchical classification
 - Variance analysis
 - Principal components analysis

Results: descriptive analytical tests

- Coherence of the results



Which means that:

- The chosen descriptors are suitable for the product space
- The expertise of the panel of tasters is sufficient
- The storage method affects the organoleptic properties of rye bread
- Measured changes to organoleptic properties can be linked to the storage conditions

Results (from PCA and variance analysis)

- Frozen breads are clearly different from fresh breads in terms of the homogeneity and intensity of the soft middle of bread.
- Fresh breads and vacuum-packed or modified atmosphere-packed breads are sensorily close 3 day after the bag' opening.
- Fresh breads and vacuum-packed or modified atmosphere-packed breads are statistically different from fresh breads by the crust toughness directly after the opening

Consumer authenticity test¹

- What are the consumers' sensory expectations of a "Valaisan AOC rye bread"?
- Consumer recruitment
 - Plain, hillside, mountain
 - Rye bread consumers (at least twice a month)
 - Aged over 15
- Authenticity test
 - Similarity estimation between a product and the subject's internal standard
 - N>36
 - 15 to 30 samples
 - "Do you think this rye bread is an authentic Valaisan AOC rye bread"?

¹SSHA, Sensorial evaluation, methodological manual, 2009, Lavoisier

Results

- Results of the authenticity test
 - Binomial test (test for a proportion) : each bread separately
 - Generalized linear model for binomial data (to test

Results

- No consensus on the authenticity of Valaisan AOC rye bread
- Consensus on the lack of authenticity of the two vacuum-packed rye breads consumed immediately after opening.



Conclusion

- Analytical tool created: sensorial profile
- The organoleptic characteristics modified by the storage of the bread:
 - Humidity of the middle of the bread
 - Homogeneity of the colour of the middle of the bread
 - Intensity of the colour of the middle of the bread
 - Hardness of the crust
- A criterion of authenticity: the hardness of the crust
- Need to repeat and extend the authenticity tests
- Use of qualitative approaches (for instance focus groups)