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The kinetics of fermentations occurring in sour dough stored at different temperatures and their influence on bread quality.

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Abstract

The fermentations induced by the utilization of sourdough in bread-making, are able to enhance the qualitative properties of the final dough, improving its volume, texture and flavour, so to obtain a bread characterized by high qualitative properties and able to retard its staling process.

In particular the working conditions adopted can deeply affect the ratio occurring between the populations of lactic acid bacteria and alcoholic yeasts of the sourdough and then also the productions of the related metabolites, which deeply affect the sensory properties and also the quality of the final bread.

The effect induced on the microbial and chemical composition of the sourdough by different values of the storage temperature utilised (13, 19 and 27°C) between two its successive refreshes (~ 24 hours), was evaluated to put in evidence the different sensory characteristics assumed by the corresponding breads. The sensory profiles of the obtained breads evaluated by the descriptive analyses, was carried on by a panel of trained assessors who used a sensorial sheet specifically developed for this purpose and characterized by unstructured graphical intensity scales and the reliability of judgments obtained was evaluated by statistical analysis.

So it was possible to put in evidence the high degree of correlation occurring among microbiological and chemical data of the sourdoughs and the sensorial characteristics of the corresponding bread. Among the three storage temperatures of the sourdough, 19 °C appears to be able to ensure the best characteristics to sour dough bread.

Biography

Francesca Venturi completed his 1^st Ph.D at the age of 28 years from the Scuola Superiore Sant'Anna, Pisa. She is a researcher in Food Technology of Pisa University. In 2008, she received a "Special Mention" at "Montana Premium" for Food Science Research (with her colleague Zinnai A.). She published more than 60 papers in journals or volumes and serving as a referee for research papers for ACS journals. She was an author in an Original Patent of Pisa University (RM2010A000617) and a scientific responsible for another patent (PT2008A000006) that received a "Special mention of the Jury" at 24° SIMEI (22-24/11/2011).