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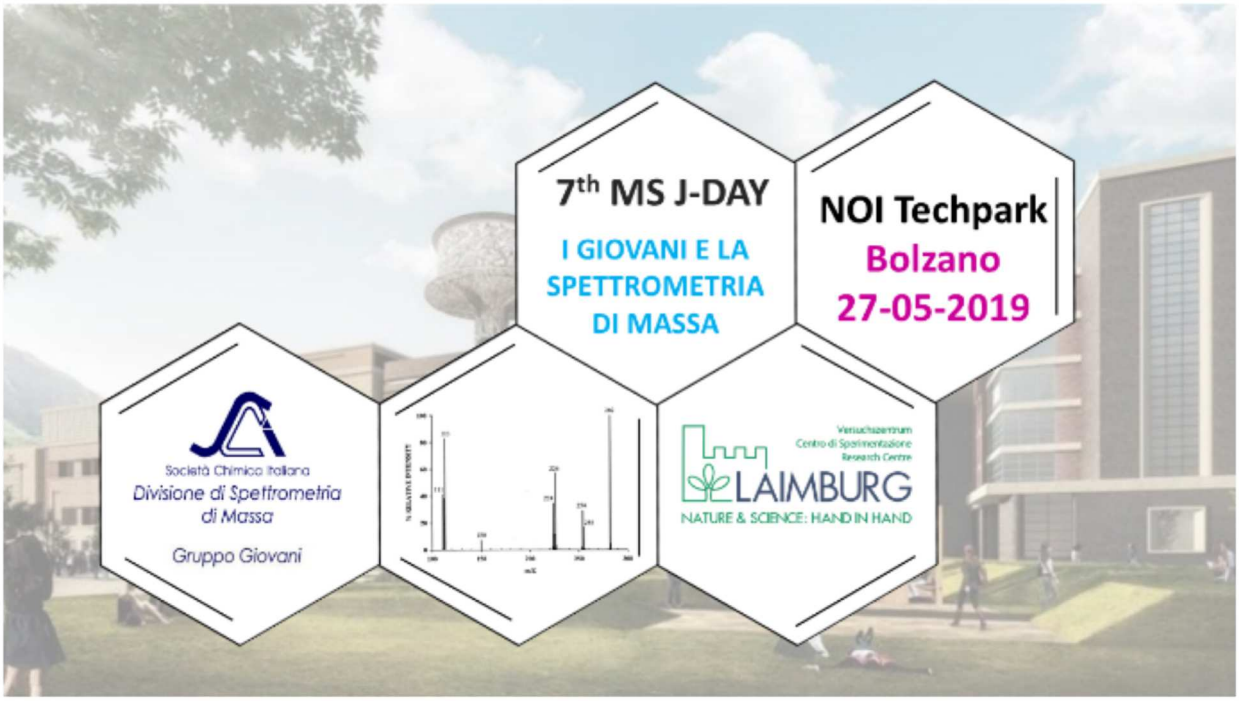

Book of abstracts

Rapid quality monitoring of UHT lactose free milk by PTR-MS: the effect of storage time and different lactase preparations

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Summary: *The study investigated the application of proton transfer reaction-mass spectrometry (PTR-MS), coupled with a time-of-flight (TOF) mass analyzer, to spot differences in the VOCs profiling of lactose-free milk produced with different commercial lactase preparations.*

Keywords: *lactose-free milk, PTR-MS, shelf-life*

As answer to the increasing awareness for lactose intolerance, lactose-free (LF) milk represent a simple and handy solution for consumers [1]. However, production of LF milk is not simple and studies already reported its higher sensitivity in comparison with conventional milk during shelf-life [2]. Proton transfer reaction-mass spectrometry (PTR-MS) is considered a valuable technique for rapid, non-invasive, and sensitive assessment of VOCs of various food products [3]. In this context, PTR-TOF-MS was applied to assess the temporal changes in the "volatilome" of UHT LF milks produced with three different lactases over a 150 days period. First of all, the applied methodology was found suitable for spotting differences due to the batch-to-batch variability of the starting milk. Additionally, PTR-TOF-MS put in evidence that specific VOCs experienced a significant increase during shelf-life. Most of them were methyl-ketones. The application of different commercial lactases did not end up in different VOCs profiles among the UHT LF milk. Benzaldehyde (m/z 107.0484) was the only compound which differed depending on the lactase preparation employed. Strecker degradation was proposed as pathway of its formation. All together data demonstrated the suitability of PTR-ToF-MS to monitor the quality of UHT lactose-free milk during shelf-life.

References

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