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BOOK OF ABSTRACTS

P11 - CLASSIFICATION OF BLACK AND GREEN TEAS BASED ON VOLATILE COMPOUND PROFILES ANALYZED WITH PTR-TOF-MS

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The leaves of tea plant are used as starting material to produce a wide variety of teas with different fermentation degree and characteristics. Each tea producing country has different regions with its own tea processing methods which characterize the color, appearance and the flavor of the final product. For this purpose, most of tea products are marketed with the production region for product authentication and valorization. The composition and concentration of volatile aroma compounds strongly influence the sensory perception of tea and therefore it is significant to highlight the differences between tea products and origin related properties.

In this study we used proton transfer reaction-time of flight-mass spectrometry (PTR-ToF-MS) to analyze the volatile profiles of 63 black and 38 green teas from different countries. The headspace volatile fingerprints of tea leaves and tea infusions were collected and the tea classes and geographical origins were tracked with statistical pattern recognition techniques. The results provided successful separation of the black and green teas based on their headspace volatile emissions both from the dry tea leaves and their infusions. The volatile fingerprints were then used to build different classification models for discrimination of black and green teas according to their geographical origins. Two

different cross validation methods were applied and their effectiveness for origin discrimination was discussed. The classification models showed differences between volatile emissions of black and green teas produced in different countries.

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