3rd International Symposium on Lipid Oxidation and Antioxidants

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eBook of Abstracts

23 – 24 November 2020

Web Meeting

Scientific Programme

Monday, 23 November 2020

09.30 a.m.   Opening –Welcome

Session 1 - Proteins and Lipid Oxidation
Chair: Carlos Bravo + Charlotte Jacobsen

09.45 a.m.   **Protein and Lipid Oxidation in Pressurized Meat: A Possible Link?**
C. Guyon, Nantes/FR, A. Meynier, Nantes/FR, M. de Lamballerie, Nantes/FR

10.00 a.m.   **Influence of Oregano or Beer Addition on Lipid and Protein Oxidation during Cooking and Digestion of Chicken Meat**
M.M.C. Sobral, Porto/PT, S. Casal, Porto/PT, M.A. Faria, Porto/PT, S.C. Cunha, Porto/PT, I. M. P. L. V. O. Ferreira, Porto/PT

10.15 a.m.   **Quantitative Spatiotemporal Mapping of Lipid and Protein Oxidation in Mayonnaise**
S. Yang, Wageningen/NL , A.A. Verhoeff, Wageningen/NL, D.M. Merkx, Wageningen/NL, J.v. Duynhoven, Wageningen/NL, J. Hohlbein, Wageningen/NL

10.30 a.m.   **Identifying Peptides Derived from Seaweed, Single Cell and Potato Protein with Emulsifying Properties and Investigating their Functionality in 5% Fish Oil-in-Water Emulsions**
B. Yesiltas, Kgs. Lyngby/DK , P.J. García-Moreno, Granada/ES, A.M. Soria Caindec, Kgs. Lyngby/DK, L. Lægsgaard, Kgs. Lyngby/DK, M.L. Brinch, Kgs. Lyngby/DK, P. Marcatili, Kgs. Lyngby/DK, T.H. Olsen, Kgs. Lyngby/DK, S. Gregersen, Aalborg/DK, C. Jacobsen, Kgs. Lyngby/DK

10.45 a.m.   Coffee Break

Session 2 - Antioxidant and Lipid Oxidation Evaluation Methods
Chair: Charlotte Jacobsen + Fatima Paiva-Martins

11.45 a.m.   **Application of an Electronic Tongue as a Single-run Tool for Olive Oils' Total Phenols and Oxidative Stability Estimation**
Í. Marx, Porto/PT , N. Rodrigues, Bragança/PT, A. Veloso, Coimbra/PT, S. Casal, Porto/PT, J. Pereira, Bragança/PT, A. Peres, Bragança/PT

Lectures

Application of an Electronic Tongue as a Single-run Tool for Olive Oils' Total Phenols and Oxidative Stability Estimation

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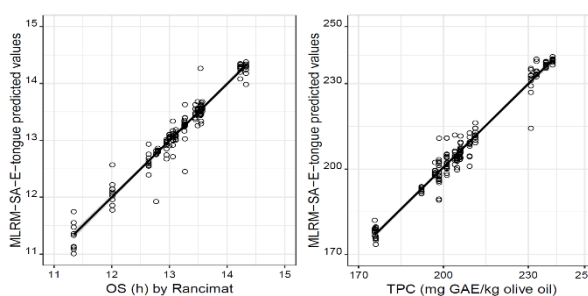
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Olive oil quality can be enhanced during olive oil extraction, particularly by promoting the extraction of phenolic componds extraction leading to the increase of the oxidative stability (OS). However, both total phenols content (TPC) and OS measurements (Folin-Ciocalteau spectrophotometric method and Rancimat, respectively) are time-consuming and expensive tasks, of difficult implementation in production lines. Thus, the present work studied the feasibility of using a potentiometric lab-made electronic tongue (E-tongue, Figure 1A), comprising non-specific lipid polymeric sensor membranes, coupled with multiple linear regression (MLR) models to predict TPC and an estimative of the OS of *cv*. Cobrançosa oils extracted at different malaxation temperatures (22 to 34 °C). For the potentiometric analysis, the oils' polar phenol fraction was extracted with *n*-hexane and an aqueous methanolic solution (MeOH/H_2O 80:20 v/v). The E-tongue-MLR models, based on sub-sets of 11 non-redundant sensors selected uisng the simulated annealing algorithm, allowed predicting (repeated K-folds-CV) the TPC (175<TPC<240 mg GAE/kg; RMSE=2.0±0.8 mg GAE/kg; R^2=0.99±0.01) and, indirectly, to estimate the OS (11.5<OS<14.5 h; RMSE=0.08±0.07 h; R^2=0.99±0.01), which values are directly related with the TPC. The satisfactory quantitative performance can be visualized in Figure 1B. In conclusion, the results showed that the E-tongue could be applied for quantifying TCP and predicting OS, both abovementioned shelf-life related parameters.

Figure 1. (A) E-tongue sensors arrays **(B)** E-tongue predictive performance