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authentication. A total of 169 samples were analyzed with the HERACLES II FGC E-nose, including authentic Moroccan EVOO blended with lampante, virgin, and various edible oils at concentrations from 1.5% to 30%. Data were processed using Partial Least Squares Discriminant Analysis (PLS-DA), Partial Least Squares regression (PLS), and multilayer perceptron neural networks (MLP-ANN). Using the full chromatogram and a non-targeted approach, the MLP-ANN model achieved the best classification accuracy, exceeding 94%. The same model, featuring 15 hidden layer nodes and trained with the Levenberg-Marquardt backpropagation algorithm, effectively quantified adulteration levels, reaching an R^2 of 0.875 and an RMSE of 3.21% on the test set.

Keywords: Extra virgin olive oil; "Picholine Marocaine"; Flash GC E-Nose; authentication; Machine Learning; Deep Learning.

FP_SY08 | Impact of simulated winter and summer transport conditions on olive oil physicochemical-sensory quality

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ABSTRACT

This study investigated how temperature variations during transportation affect the quality of extra virgin olive oil (EVOO). Samples with ripe and light green fruitiness were stored in plastic and glass bottles and exposed to simulated winter (4–16 °C) and summer (16–45 °C) daily temperature typical cycles. Over a 45-day period, quality parameters, antioxidant activity (DPPH), and sensory characteristics were analysed every 15 days. Although the oils remained within the legal EVOO thresholds a progressive decline in quality indicators was observed. By day 45, a rancid defect emerged, disqualifying the oil to VOO. DPPH values dropped by 56% in ripe oils and 61% in light green ones. Under summer conditions, total phenols in green EVOO stored in plastic containers fell sharply from 573 to 189 mg/kg. These findings highlight that temperature fluctuations, especially under summer-like conditions, negatively affect the physicochemical-sensory quality of oils, emphasizing the importance of proper transport conditions.

Keywords: Olive oil quality; packages; temperature; storage; oxidation.

FP_SY09 | Sequential Ultrasound-Assisted Extraction of Proteins and Polyphenols from Olive Leaves and Their Application in Agar-Based Bioactive Edible Films: Process Optimization

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