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**Effect of different sterilization modes upon the quality characteristics of low-fat meat pâtés**

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The present work studies the effect of different sterilization modes upon the quality characteristics of meat pate with improved nutritional profile by reducing fat and enrichment with inulin and lentils. Changes in texture and color parameters, emulsion stability and oxidative changes in the lipid fraction of low fat pastes obtained under five sterilization regimes (111°C for 24 min, 121°C for 24 min, 111°C for 70 min, 121°C for 70 min, 116°C for 47 min) were evaluated. The lowest emulsion stability was registered in the sample with the most intensive sterilization mode and at the highest applied temperature - sample 4 (98.94%). It has been found that there is a relationship between hardness and sterilization regimes, as well as between the applied temperatures and the formation of primary and secondary lipid oxidation products. An increase in the hardness values is more pronounced in the samples obtained under the milder sterilization modes, while a decrease in the hardness index is observed in the severest sterilization mode used in the sample 4.

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**Estimating the spatial variability of water needs using LiDAR laser scanner in an apple orchard**

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In semi-humid climate, spatially resolved analysis of water deficit was carried out in a 6 ha apple orchard (*Malus x domestica* 'Gala'). The meteorological data was recorded daily by a weather station. The apparent soil electrical conductivity (ECa) was measured at field capacity with a Wenner array. A light detection and range (LiDAR) laser scanner system was mounted on a tractor for the estimation of leaf area (LA). The actual evapotranspiration (ETa) was estimated daily considering the crop coefficients Kcb, soil water stress, and soil surface evaporation. The information of LA obtained from LiDAR and the tabulated LA values from FAO were implemented in Kcb, creating the measured actual evapotranspiration (ETa,m) and the actual evapotranspiration based on the tabulated values (ETa,0), respectively. Consequently, their influence on the water needs was compared through the application of water balancing. The LA and the ECa correlated positively ( $r=0.65$ ), a result which indicates that in heavier soils the evaporation is higher due to the increased canopy conductance. The monthly values calculated by the FAO-based water balance model were 36.6 mm lower, in comparison to the water balance based on measured values. Similar results were found in low and high ECa regions.