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Abstract book

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O10.5

Physicochemical, textural and sensory properties of custard formulated with quinoa as a novel ingredient

Muñoz Tebar N[1], Ponce Martínez A[1], Sayas Barberá M[1], Viuda Martos M[1], Lorenzo J[2], Pérez Álvarez J[1], Fernández López J[1]
[1]IPOA Research Group, Agro-Food Technology Department, Miguel Hernández University, [2]Centro Tecnológico de la Carne de Galicia

Aim: Currently around 42% of the global consumers are identified as flexitarians, i.e. they want to reduce the consumption of animal-based foods in favor of plant-based foods. In order yo meet this demand, the development of hybrid dairy foods (in which milk is partially replaced by plant-based ingredients) is one of the emerging trends that the dairy industry should address. The study aimed to asses the effect of quinoa (flour and drink) incorporation on the physicochemical, textural and sensory properties of custard suitable for a flexitarian diets.
Method: Custards were prepared using the following ingredients: commercial UHT whole fat cow milk, sucrose (6%), quinoa flour (10%), vanilla essence (3 ml) and rice-quinoa drink to obtain 5 types of custard formulations with different milk/rice-quinoa drink ratios (100/0; 75/25; 50/50; 25/75; 0/100). All the ingredients were mixed, heated to boiling and then the custards were stored at 4ºC for 48 h until further analysis. Physicochemical parameters (color, aw and pH) and syneresis of custards were measured in triplicate. Textural characterization (TPA) was carried out in triplicate. For the sensory analysis, consumer panelists scored the samples for aroma, flavor, color, texture and overall rating.
Results: Quinoa drink incorporation didn't influence the pH of the custards. Luminosity (L*) decreased from 66.41 to 57.27 by increasing the proportion of quinoa drink in the custard, becoming less luminous. Coordinate a* was lower as the proportion of quinoa drink in the custards increased while b* remained similar in all samples. Water activity varied from 0.86 to 0.98 being higher in the custards containing 25, 50 and 75% quinoa drink. Also, the incorporation of quinoa drink didn't impair the syneresis of the dairy dessert but resulted in a reduction in hardness (from 17.26 to 5.27 N) and compressibility (111.1 vs 5.71 N/mm) in samples formulated with 75% quinoa drink while adhesiveness increased (from -41.44 to -1.05 N/mm) compared to custards made with 100% milk. Sensory analysis revealed that the custards containing 25% quinoa drink were the best rated, obtaining the highest overall rating.
Conclusion: The results demonstrate that quinoa is a potential ingredient for the development of new hybrid dairy desserts with good sensory properties.

O17.7

Strategies for the valorization of date fruits from Alicante palm groves

Álvarez J[1], Muñoz-Tébar N[1], Muñoz-Bas C[1], Botella-Martínez C[1], Candela-Salvador L[1], Sayas-Barberá E[1], Navarro-Rodriguez de Vera C[1], Lucas-González R[1], Viuda-Martos M[1], Fernández-López J[1]
[1]IPOA Research Group CIAGRO Miguel Hernandez University

Aim: Alicante province (Spain) has the largest palm groves (Elche and Orihuela) in Europe (approx. 500000 palm trees). Their date production (approx.75000 tons) is undervalued and undervalorizated (only 2% of its production is used), mainly due to the lack of knowledge of fresh dates' nutritional and technological properties. The aim of this work was to make several strategies for the valorization of this production contributing to the sustainability of palm groves in Alicante.
Method: Dates from different ripening stages (Khalal, Routab, and Tamar) were harvested and processed (according to their specific characteristics) to obtain different stabilized value-added products. Grinding, soaking, and dehydration, technologies were applied. Operational conditions were optimized depending on the raw material and the final product. Chemical composition and physicochemical parameters were evaluated.
Results: Three value-added products were obtained: date paste, date juice, and date flour. The predominant fraction in date pastes was the moisture followed by total carbohydrates (sugars and dietary fiber) with small amounts of fats, ashes, and proteins. Moisture and dietary fiber content of date pastes decreased and sugar content increased ($p<0.05$) as the ripening stage progressed. L* decreased through ripening, showing the highest L* date paste from dates at the Tamar stage ($p<0.05$). The higher the ripening stage, the higher the total soluble solids (TSS) content in date juice. Date juices at Routab and Tamar stages showed the highest TSS values (18.3-19.5ºBrix). The main components in date flours were sugars (> 50%) and TDF (27.9-32.1%) following the same trend as date pastes were affected by the ripening state. Date flour lost lightness as the maturation stage increased.
Conclusion: The application of simple basic operations as tools for Alicante dates valorization has allowed the obtention of stable intermediate food products with high added value, such as pastes, juices, and flours, whose composition and physicochemical properties contribute to their high potential for use as ingredients in food product development.
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