

Development of new fresh and processed calçot products with high added value

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01. Rationale

The calçot is one of the most important horticultural product in Catalonia, especially in the Tarragona region. Its importance has even gone beyond the agricultural sphere, making it one of the most important tourist attractions in the Camp de Tarragona area. However, the increase in supply and the stabilisation of demand is leading to increasingly lower wholesale prices, which translates into a lower profit margin for farmers.

The main objective of this project – taking into account the current market situation of calçots and taking advantage of the experience of the research groups in this product – was to develop new calçot products with high added value that are capable of competing in terms of quality with calçots produced in other areas, and to open up new market channels with new and innovative formats, focusing on as many aspects as possible during the growing, post-harvest, processing and conservation phases. The management of the interaction between the characteristics of the fresh product and the different conservation or transformation techniques is key to developing products that have both high added value and final homogeneity that makes them suitable for marketing. These are



Photo: Operational Group.

factors that were taken into consideration when planning the actions to be carried out within the project, which consisted of:

A1: Pre-commercial cultivation to test the new varieties in different environmental conditions.

A2: Study of the ideal conservation method based on quality parameters.

A3: Study of new methods for processing fresh calçots. Determination of the efficacy of alternative treatments for sanitising the product. Development of a new minimally processed product.

A4: Development of new premium-quality pre-prepared food products.

A5: Development of new calçot-based products.

A6: Nutritional aspects of calçots depending on the intrinsic characteristics of the crop.

02. Results and conclusions

In general terms, the main results obtained from the activities carried out in this project have made it possible to:

- Establish favourable growing conditions and methods for the preservation of the fresh product.
- Prove that the environment has a greater influence on quality characteristics than genetics, and that the sensory profile of the calçot is adequate throughout the growing season. Establish that storage temperatures between 0.5°C and 4°C are ideal for keeping calçots in cold storage without alterations to the product, and the post-harvest shelf life can be extended to 60 days in a controlled atmosphere.
- Develop a sanitisation method to obtain a minimally processed product.
- Identify ultrasound technology as an alternative treatment prior to the packaging stage of pre-prepared food products, for the purpose of reducing the microbial load and maintaining the nutritional quality of the product. This physical treatment could be enhanced through combined use with a chemical disinfectant or gentle heat treatment.
- Develop pre-prepared and premium-quality pre-prepared food products and new products based on the use of non-commercial size calçots.
- Demonstrate the gastronomic potential of the calçot and its suitability for transformation processes such as freeze-drying and dehydration. In addition, it opens the door to the potential release of new products onto the market, given its good sensory acceptance by consumers.
- Define the nutritional description of calçots.
- Evaluate the nutritional aspects of the products according to the intrinsic characteristics of the crop. It has been demonstrated that calçots, similarly to onions, contain antioxidant compounds and can therefore be presented as a healthy addition to the Mediterranean diet. Further studies will have to be carried out on the nutritional value of calçots to see, for example, how they are affected by the different possible cooking or preparation methods. This will make it possible to create added value and diverse uses for calçots, which until now have been limited mainly to 'calçotades'.

In conclusion, the activities carried out as part of this project have allowed a greater understanding of the cultivation of calçots, their post-harvest and transformation. The objectives set have been favourably achieved, and the results obtained open the door to greater efficiency and productivity in the cultivation and marketing of calçots and diversification of their use, with the development of new products, always considering quality as the key characteristic.