

Effect of spray drying on technological and functional properties of albumin powder and its influence on the development of a typical Colombian dessert, "merengue."

PULGAR-MONSALVE G. (2), DURANGO-MARTEZ R. (1), GRANDA-RESTREPO D. (1), VEGA-CASTRO O. (1,3)

1 Grupo de Investigaci BIOALI, Universidad de Antioquia,, medellin, Colombia

2 IA Ingenier en alimentos - Nutrici Inteligente, Itagui, Colombia

3 Universidad de Antioquia, Seccional Oriente, Carmen de Viboral, Colombia

According to the FAO, the egg is one of the foods with the highest nutritional value due to the content of proteins, amino acids, vitamins, minerals, and essential substances. One of the egg's essential components is albumin, a primary raw material for formulating various food products. However, fresh albumin is a perishable product, making various industry applications difficult. This work aimed to develop and characterize a typical Colombian dessert, "merengue," from a powdered raw material obtained from egg albumin through spray-drying processes. The methodology included the proximal characterization according to AOAC and the quantification of amino acids by GC-M, both for fresh and powdered albumin. For the spray drying of the albumin, a VIBRASEC® brand industrial dryer was used. Technological properties for albumin powder were determined: emulsion capacity, water, and oil retention capacity, foam capacity, and stability. For the formulation of the dessert, powdered albumin, lemon, and sugar were used; the characterization of the merengue was done by textural, proximal, and sensory methods. As the main results, it was possible to establish that the protein, moisture, and ash content of albumin powder ranged between 50.06-81.38%, 6.30-7.68%, and 3.78-8.21%, respectively. The useful lysine content of the powder varied between 1.5 to 3.2g/100g of protein, and the foaming capacity values were ??between 3.97 -9.75 mL/g. Finally, it was possible to establish that the firmness of the merengue was, on average 7N. The sensory parameters of the merengue reported good taste, smell, and texture according to the qualification of the trained panel. In general, it can be concluded that it is possible to obtain an albumin powder through spray-drying processes, with technological and functional properties suitable for the development of a typical Colombian dessert, "merengue," which showed good textural, sensory, proximal, and functional characteristics, following current regulations.