

## **Development and formulation of a strawberry dispersion fortified with Zn and folic acid: obtaining and characterizing a powder by spray drying.**

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The strawberry is a fruit desired worldwide for its flavour, aroma, and nutritional content; however, it is a non-climacteric fruit, and its shelf life is three days. It is essential to look for processing alternatives for strawberries. On the other hand, the lack of consumption of zinc generates worldwide approximately the death of 4.4% of children, while the lack of consumption of Folic Acid (FA) in pregnant women produces problems in the immune system, cognitive impairment, and low IQ in new-born children. The main goal of this work was to optimize strawberry dispersion, fortified with folic acid - Zinc, and obtain a powder by spray drying. The methodology included the formulation of strawberry dispersions through a composite central design 2k, as independent variables the concentration of maltodextrin (MD) (10-30%) and gum arabic (GA) (5-15%); as response variables, water activity (aw), density, viscosity; for the fortification of the dispersion with Zn and AF, as recommended in Resolution 810 of 2021 of the Ministry of Health and Social Protection of Colombia. Spray drying was done in a Lab Spray Dryer TP-S15 spray equipment at 180°C. As a result, it was possible to determine that for the strawberry dispersion, the response variables were significantly affected ( $p < 0.05$ ) by the concentration of MD and GA. The optimal formulation of the dispersion was 18.6% (MD) and 7.4% (GA) with values 0.912, 1.12 g/ml, and 12.2 mPas, for aw, density, and viscosity, respectively. About the powder, the solubility of 95% and 14% of hygroscopicity, the particle size 200  $\mu\text{m}$ , and the contents of Zn and AF, were within the range of Colombian regulations. It is concluded that it was possible to formulate, optimize and characterize a strawberry dispersion fortified with folic acid and Zn through the response surface methodology, being suitable for processing by spray drying to obtain a powder with proximal and functional properties in accordance with Colombian regulations. The above is a contribution to the transformation of the strawberry and the development of powders that can be consumed by pregnant women and children as an alternative food.