

## Special Article - Fruit Dehydration

# Influence of the Drying Process in Nutritional, Functional Quality and Sensory Acceptance of Fruit

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## Editorial

Dehydration is a technique used in the preservation of foods, especially fruit, that exists throughout mankind's history and enables the storage of food for prolonged periods without the use of refrigeration.

The dehydration process of fruits can use different techniques, such as direct sun exposure or the use of equipment, such as solar dryers and forced convection dryers, among others. It is possible to dry the entire fruit, when the skin presents good permeability to the drying process. It is also possible to dry slices of fruits with or without their skins such as those that have fleshy pulps, like apples, pineapples, bananas and mangos. Another way is to dry the pulps that have different grades of hydration such as oranges, açai and passion fruit.

With the increasing demands for foods, such as natural and traditional foods, with higher nutritional values, there is also an increase in the demand from the food industry for ingredients that promote health benefits for consumers. As a result, there is an increase in the supply of dehydrated fruits and pulps for direct consumption or for use in processed foods, such as cereal bars, yogurts and others.

The drying method that is used can affect the quality of the final product. For example, dried passion fruit skins (*Passiflora edulis Sims*) is transformed into a type of flour that is mixed into human foods in Brazil since it is rich in dietary fibers, phenolic and flavonoids and is therefore beneficial to human health. The flour is usually obtained by drying the skin in dryers with forced inlet air. However, the contents of the phenolic compounds and flavonoids are higher when the drying process uses a microwave [1]. Drying through lyophilization provided a higher availability of soluble fibers, as well as the preservation of the phenolic and flavonoid contents. Therefore, it is possible to improve the nutritional and functional quality of ingredients depending on the drying method used [1,2].

Despite the benefits of the flour obtained through conventional methods (thermal drying), few products are made using the flour, due to its sandy texture. Results of research, however, show that the flour obtained from the freeze-drying process does not present the same sandy texture, making it a suitable ingredient to be used in several products, such as pasta [3], cream cheese [4] and sweetened concentrates [5], among others.

The main component of the lyophilization drying process is the energy cost. Despite the existence of more efficient equipment, which makes the lyophilization drying process a viable alternative, costs of some raw materials with higher hydration content is still considered too high.

Therefore, in order for the lyophilization drying process to be more widely used, it is important to carry out research that will promote a reduction in the equipment's energy consumption costs while increasing the efficiency of the drying process. Improvements in the process will certainly result in benefits for both businesses and consumers, who will have better quality products on the market at more affordable prices.

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