

عنوان مقاله:

(Assessment of biomaterial curve drying rate (Case study : Panax ginseng

محل انتشار:

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خلاصه مقاله:

An urgent task is to study the kinetics of drying biologically active materials using the example of ginseng biomass in order to substantiate the modes of sublimate drying. To substantiate the drying modes, it is necessary to know the following main process parameters: the method of freezing an initial product; initial moisture or dry matter content of ginseng biomass; product layer thickness; the maximum permissible temperature for heating the product. Based on the curves of the kinetics of ginseng biomass drying, it was found that the drying time of ginseng biomass with a high concentration of dry substances $W = 20\%$ with the same energy supply is less than a sample with a low concentration $W = 3\%$, but the drying rate of biomass with a lower concentration is higher. It was found that during self-freezing, the rate of moisture evaporation during this period is $3-5$ times higher than during the period of sublimation, which reduces the total energy consumption for drying while maintaining high-quality indicators of the dried product. When drying thermolabile products, which include ginseng biomass, the intensity of heat supply is limited by the maximum permissible heating temperature of the material surface $+ 60 \text{ }^\circ\text{C}$. The thickness of the product layer during drying is $10 - 11$ mm, at which the specific productivity of the installation will be maximum.

کلمات کلیدی:

Ginseng biomass, Self-freezing, Drying kinetics, Heating temperature, Layer thickness

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