MULTI-OBJECTIVE OPTIMIZATION TO DETERMINE THE COLD DRYING MODE OF GAC (*MOMORDICA COCHINCHINENSIS SPRENG*)

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ABSTRACT

The establishment of the cold drying mode of Gac was based on the solution to multi-objective optimization problem by the restricted area method. Experiments were carried out to set up the mathematical model of objective functions describing the influence of technological factors (temperature of moisture condensation, temperature of cold drying chamber, velocity air (or drying agents) and time of cold drying) in the cold drying process. The restricted area method with $R^*(Z)$ optimal combination criterion was applied to solve the multi-objective optimization problem, determining the optimal technological mode of cold drying process (correspondingly 9.83^0C; 44.18^0C; 3.46m/s and 12.36h) in order that the objective functions reached the minimum value in terms of the finished product, including the energy consumption of 2.17kWh/kg, the residual water content of 7.45%, the anti-rehydration capacity of 8.69%, and the loss of total β-carotene and lycopene in Gac of 5.04%.