Effect of Different Drying Methods on Quality of Toona sinensis Sprouts

Abstract: The effects of four drying methods on the quality of Toona sinensis sprouts were studied by sensory evaluation and determination of main nutrient contents.

The results showed that microwave drying equipment could maintain the main nutrient components of Toona sinensis seedlings and sprouts to the greatest extent. After drying, the chlorophyll content of Toona sinensis seedlings and sprouts reached 14.0081 mg/g-1, the vitamin C content reached 2.6203 mg/g-1, and the amino acid nitrogen content reached 24.3340 mg/g-1.

The protein content reached 79.0076 ug, which was higher than other drying methods, and the sensory quality of dried Toona sinensis sprouts was better; the comprehensive effect of vacuum drying was slightly worse than that of vacuum freeze drying; the loss of vitamin C by microwave drying was larger, and the comprehensive effect of microwave drying and hot drying was worse.

Key words: microwave drying Toona sinensis; nutritional components; sensory quality

Toona sinensis is a precious woody vegetable in China. It can be cultivated soilless with Toona sinensis Seeds under light conditions. It has the characteristics of crispness, tenderness, fresh green and strong fragrance. Toona sinensis seedling sprouts are mostly used as condiments for salad vegetables. However, it is not easy to keep fresh after sale and before consumption, even in the refrigerator, the effect is not ideal.

The proper drying method and technology for Toona sinensis sprouts can not only maintain its original color, fragrance, taste and nutritional components, but also be easy to preserve and carry. It can be used as ready-to-eat, convenient condiment and has great practical value.

Different drying methods will have different effects on the quality of Toona sinensis seedlings and sprouts. Four drying methods, hot air drying, microwave drying, vacuum drying and vacuum freeze-drying, were used to carry out drying experiments, in order to find suitable drying methods and provide technical support for its drying and processing.
Compared with different drying methods, vacuum freeze-drying can keep the color, shape and aroma of Toona sinensis seedlings and sprouts better. After drying, the change rates of the three basic color values of Toona sinensis seedlings and sprouts were 0.44%, 0.72%, 0.24%, and the change rates of length and diameter were 4.10%, 32.02%, respectively, which were better than other drying methods. Methods: The rehydration rate of Toona sinensis sprouts after vacuum freeze-drying was 51.05%, which was higher than that of other drying methods. The color, shape and aroma of Toona sinensis sprouts when fresh were restored after rehydration.

In terms of nutrient composition, the main nutrient contents of Toona sinensis sprouts after vacuum freeze-drying were higher, chlorophyll content was 14.0081 mg g⁻¹, vitamin C content was 2.6203 mg g⁻¹, amino acid nitrogen content was 24.3340 mg g⁻¹, protein content was 79.0076 ug. It is higher than other drying methods. Vacuum freeze-drying is a feasible and practical method for drying sprouts of Toona sinensis seedlings.