

Quality Changes According to Storage Conditions of Wasabi (*Wasabia japonica* MATSUM)

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BACKGROUND

Wasabi also known as Japanese horseradish is a representative spice that imparts a spicy flavor. Domestic wasabi is primarily cultivated in regions such as Cheorwon and Pyeongchang in Gangwon Province, producing approximately 3 tons annually. The domestic fresh wasabi consumption market is estimated to be around 4 tons as of 2022. In recent times, its unique aroma and taste have made it popular not only in Japanese cuisine but also in various dishes, including meat and Western cuisine, particularly among younger generations. However, there is a lack of basic information about wasabi. Therefore, this study investigates the quality changes in wasabi stored under different conditions.

MATERIALS AND METHODS

Experimental material. Wasabi rhizomes (40 ± 5 g) produced by a farm in Cheorwon were used.

Storage temperature and conditions. The storage temperatures were set at -2, 0, 4, 10, and 25°C. each storage temperature under two conditions: normal atmospheric storage and vacuum storage.

Texture analysis. The Texture Profile Analysis (TPA) program was conducted using a texture analyzer (TX-700, LAMY PHEOLOGY) with a 50kg loading cell and a Flat Probe with a 50mm diameter attached. The measurement sample size was fixed at a wasabi thickness of 2mm.

- When stored in a vacuum state, the weight loss rate and texture changes were generally less pronounced compared to normal atmospheric storage. However, starting from 2 days of vacuum storage at 25°C and 7 days at 10°C, the external color of the rhizomes began to turn yellow, emitting an unpleasant odor, and the vacuum was released due to gas emissions.
- In contrast, when stored under normal atmospheric conditions, weight loss occurred in all temperature treatment groups from 2 days, with a maximum reduction of 61.6% observed after 2 weeks of storage at 4°C. After 2 weeks of storage, the weight loss rate was the lowest at 0°C, at approximately 8%, and the change in internal color was also minimal.

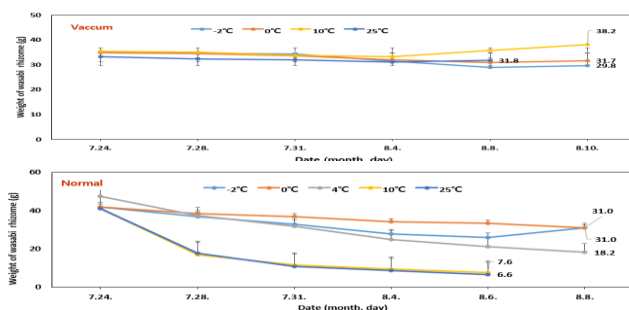


Fig. 2. Changes in weight of wasabi according to storage conditions.

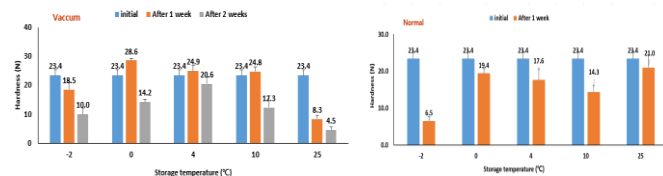


Fig. 3. Changes in hardness of wasabi according to storage conditions.

CONCLUSION

- Considering factors such as weight loss rate and color, a storage temperature of 0°C appears to be suitable for wasabi rhizomes. When stored in a vacuum state, the quality changes are minimal. When vacuum storage is not possible, it is advisable to wrap the rhizomes in damp newspaper or tissue paper to maintain moisture during storage.

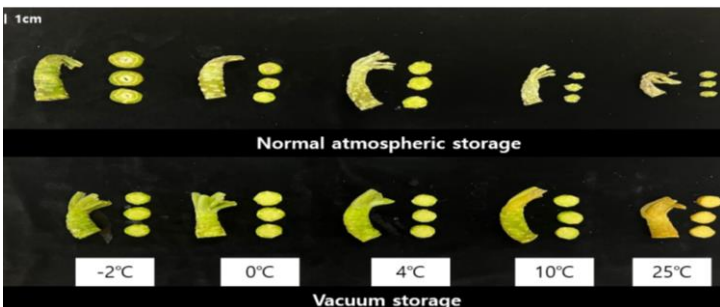


Fig.1. Changes in wasabi's appearance and color after 2 weeks of storage conditions.