

Replacement of sun-drying with artificial sunlight lamp and process development of Asian white radish (*Raphanus sativus* L.)

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Abstract



March. 15

This study aims to improve conventional sun drying and replace it with an artificial sunlight lamp to study the effect on drying, ultra-structural, and textural characteristics of Asian white radish (*Raphanus sativus* L.). Solar energy offers desirable thermal energy for several purposes such as industrial, domestic, and agri-food preservation with some drawbacks. Food drying techniques have long been applied since ancient times in conventional ways, such as drying in the sun. Currently, drying methods have been developed with the latest technology to reduce damages caused by biochemical changes, which decrease nutritional value during the drying process. Some of the typical drying methods used for food products are sun drying, tunnel dryer, spray drying, drum dryer, freeze-drying, microwave drying, and fluidized bed drying. The relative importance of temperature and reduction in drying time retain quality characteristics and preservation need to be quantified. Scanning electron microscope (SEM) analysis confirms that sunlight treatment is positively related to cell rigidity and strength of the dried radish.

Keywords: Food color, Moisture content, Textural properties, Shelf life, Solar radiation

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