

Utilization of underutilized resources and property evaluation

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Keywords

Unused resources, Extraction, Enzyme reaction, Structural analysis

Technical Support Skills

- Component analysis of Chinese chives
- Sheeting and film formation of seaweed



Research Contents

Changes in methiin content in chinese chives due to different freezing packaging methods

Methiin, a major functional component of Chinese chives, varies depending on storage conditions; however, the effect of freezing packaging methods has not been sufficiently investigated. In this study, the influence of different packaging methods under frozen conditions on component content was evaluated. Samples frozen under various packaging conditions (newspaper, plastic wrap, and freezer bags) were quantitatively analyzed using high-performance liquid chromatography (HPLC).

Summary of results:

- Methiin extraction increased after freezing (up to approximately twofold) (see Fig. 1)
- Little to no change in content was observed when using plastic wrap or freezer bags (see Fig. 2)
- In newspaper packaging, the content increased depending on thickness (drying → cell deterioration → improved extraction efficiency) (see Fig. 1)

These findings can be applied to technologies for controlling packaging conditions during frozen processing to maintain functional components, contributing to the value addition of regional agricultural products and the optimization of food processing techniques.

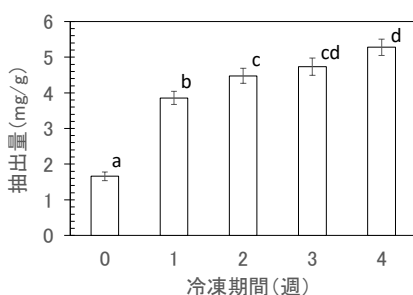


図 1 新聞紙で包装したニラの各冷凍期間のメチイン量

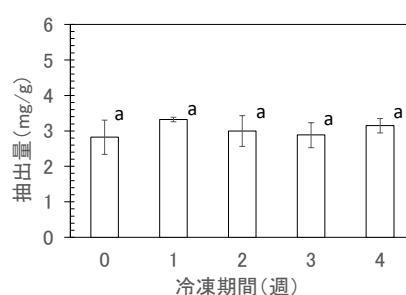


図 2 フリーザーバックに入れたニラの各冷凍期間のメチイン量

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Available Facilities and Equipment

High performance chromatography Prominence UFLC system (Shimazu)	Freeze dryer FDU-2100 (EYELA)
GC / MS (6890 Agilent / JMS-Q1000GC MkII JEOL)	Tensile Tester SV-52 (Imada)
Vibro Viscometer SV-10 (A&D)	