

## Relationship between Discoloration Potential of Barley and Polyphenol Content

Honam Agricultural Research Institute : Mi-Ja Lee\*, Chul-Soo Park, Jung-Gon Kim, Jae-Hwan Seo,  
Yang-Kil Kim, Jong-Chul Park, and Jong-Jin Hwang  
Seonam Univ. : Hyung-Soon Kim

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### Objectives

Total phenol content and whiteness of cooked barley during storage were measured to evaluate the relationship between discoloration potential and polyphenol content in barley.

### Materials and Methods

- Materials
  - 15 naked and 15 covered barley cultivars and lines,
  - 1 proanthocyanidin-free line
- Methods
  - Proanthocyanidin assay : Vanillin reaction
  - Total phenol content : Folin-Denis method
  - Whiteness of cooked barley during storage with colorimeter
    - Cooking conditions
    - : 10g of abraded grains were boiled in 30ml of water at 150°C for 40 min

### Results

- Whole barleys showed higher total phenol and proanthocyanidin content than those of abraded barleys, although any relationship between proanthocyanidin and total polyphenol content was not found.
- Total phenol content was 0.17~0.3% in naked barley and 0.15~0.28% in covered barley. Proanthocyanidin-free line showed 0.11% of total phenol content and 0.003% of proanthocyanidin content, which were less 6.5 times than those of abraded barleys.
- The whiteness of cooked barley slowly decreased, up to 6 hrs, rapidly decrease, up to 12 hrs, and then slowly decrease to 24 hrs.
- The decrease of whiteness of abraded cooked barely from proanthocyanidin-free was little as increase storage time, in spite of high total phenol content.

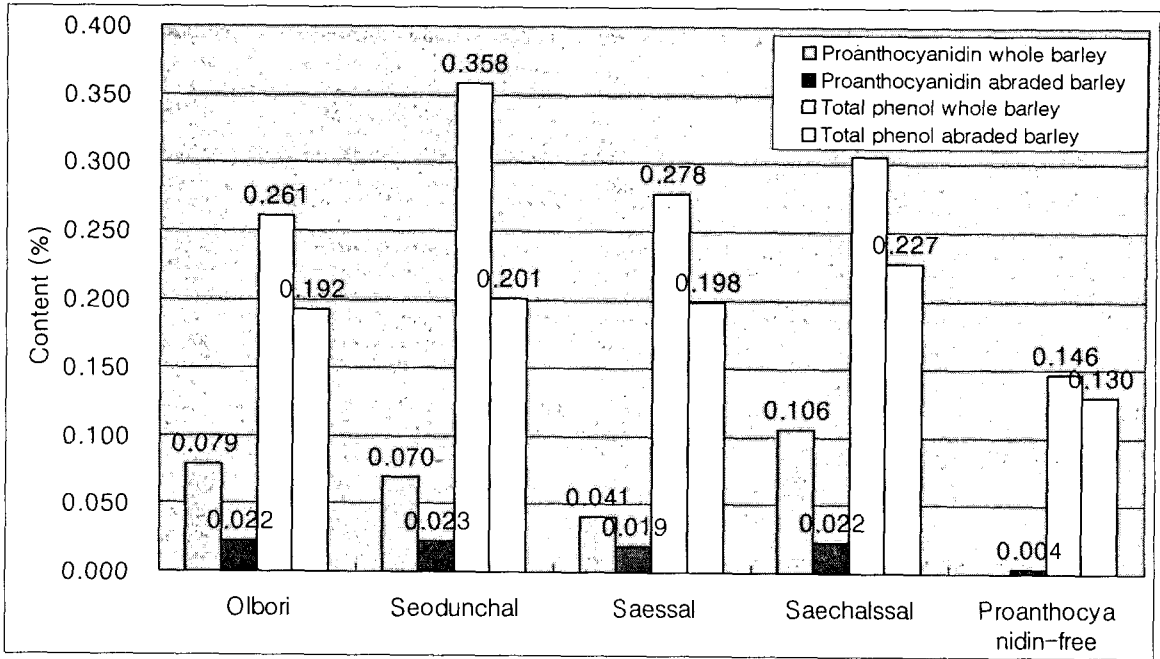


Fig. 1. Total phenol and proanthocyanidin content of whole and abraded barley.

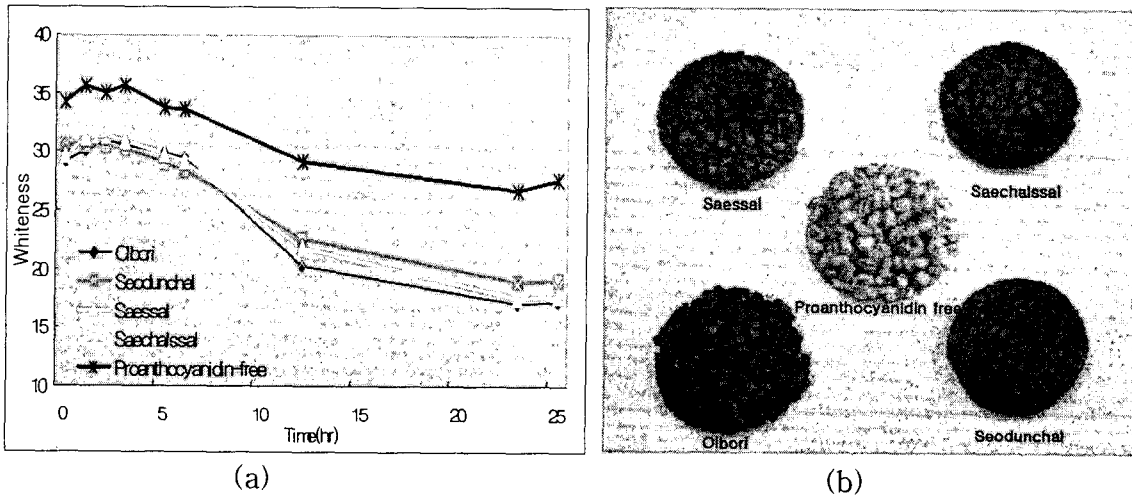


Fig. 2. The changes of whiteness of abraded cooked barley during storage.

(a) whiteness of cooked barley measured over storage time in electric cooker

(b) photograph of cooked barley after 48 hr storage time.