

# The Value of Utilization and Prospect of Forest Healing Ingredients for Native Plants in Korea

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## I. Introduction

- The perception of forests in Korea has changed with the times.
- In the past the perception of pursuing primary products such as wood was strong, but recently it has been changed to a way to pursue public interest values including recreation and healing.
- As the perspective of forest is changed, this study has purpose to examine the value and prospect of native plants, one of forest resources, as a resource for forest healing by linking them with food closely related to life.

## II. Research goal.

- Verification of the health functionality of forest product-based healing foods through food nutrition analysis.
- Presenting the health functionality of forest products and developing healing foods to lay the foundation for research on healing foods.
- Finding nutritionally excellent healing foods that can be used in forest welfare facilities.
- Development of quantitative indicators that can objectively express the functionality of healing foods.

## III. Methods

→ Introduction of **Healing Food Index** concept.

### ▪ Definition of Healing Food

- Healthy and nature-friendly foods that enhance immunity by using ingredients with a high healing food index and recipes with low nutrient destruction.

### ▪ Definition of Healing Food Index

- Index for removing free oxygen radicals through antioxidant activity in healing foods.  
- A tool to prove the health functionality (antioxidant) of forest products and healing foods.

### ▪ Calculation method of Healing Food Index

- Adopting antioxidant effect analysis method for calculating the healing food index.  
- Measure the Healing Food Index (HFI) by analyzing the antioxidant effects of healing food based on ORAC, DPPH, and ABTS tests, which are antioxidant analysis methods.

Analysis methods	Characteristics	Scope of analysis
ABTS	Easy to measure water-soluble substances.	Relative content compared to gallic acid.
DPPH	Easy to measure fat-soluble substances.	Relative content compared to ascorbic acid
ORAC	Measures the degree of inhibition of antioxidants over time.	Relative content to Trolox

>> **Healing Food Index = ORAC Value × 50% + DPPH × 25% + ABTS × 25%**

### ▪ Classification of Healing Food Index

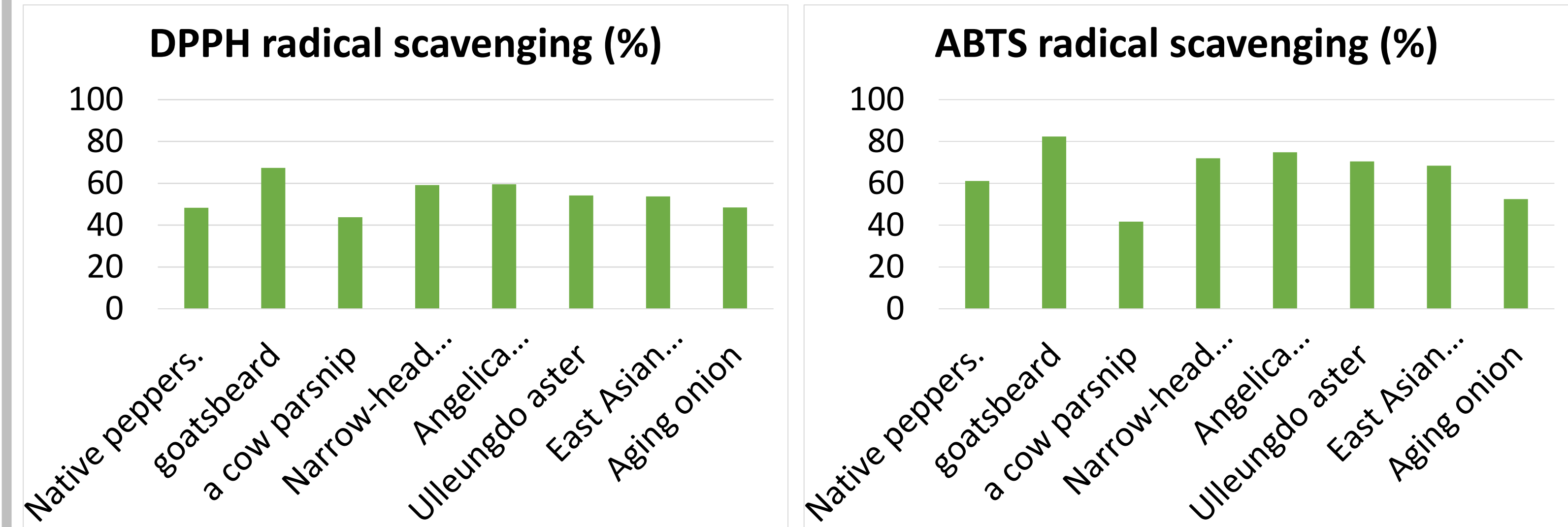
- Classification of Healing Food Index by adopting the Scoville Index.  
- A tool to prove the health functionality (effectiveness) of forest products and healing foods.

Scoville Heat Unit	Classification	HFI	Classification
100 - 2,250	Very mild	More than 80% 40,001 ~ 300,000	Very high antioxidant function. Strengthening autoimmune effect
2,700 - 3,300	Mild	50% - 80% 10,001 ~ 40,000	High antioxidant function. Autoimmune enhancement effect
5,400 - 6,600	Medium	20% - 50% 4,001 ~ 10,000	Medium antioxidant function. Constitution improving effect
9,450 - 11,150	Hot	10% - 20% 3,001 ~ 4,000	Low antioxidant function. Weak effect on constitution improvement
15,000 이상	Very hot	Less than 10% 2,000 ~ 3,000	Very low antioxidant function. Nutrition supplement effect.

## IV. Results

### ▪ Possibility of raw materials for healing food from forest products (antioxidative)

- DPPH and ABTS radical scavenging results show that forest products have antioxidant capabilities.  
- Therefore, it will be possible to use forest products as ingredients for healing food.



### ▪ Development of 10 types of healing diets applicable to forest welfare facilities and identification of health functionalities.

- Development of 10 types of healing diets that are applicable to forest welfare facilities and using highly antioxidant forest products, and calculate the healing food index.

Menu Name	Main ingredient	Health functionality result	
		HFI	Healing effect.
① Immune system strengthen diet	Mushroom	Stage 4 (14,461HFI)	Immune boost
② Blood vessel purification diet	Dume chive	Stage 3 (7,705HFI)	Improve constitution
③ Bowel movement improving diet	Seasoned aster	Stage 3 (8,855HFI)	Improve constitution
④ Anti aging diet	Mulberry	Stage 4 (10,435HFI)	Immune boost
⑤ Anti inflammatory diet	Jujube	Stage 3 (8,140HFI)	Improve constitution
⑥ Insomnia improving diet	Setidens	Stage 4 (18,403HFI)	Immune boost
⑦ Stomach strengthen diet	Chinese yam	Stage 4 (25,611HFI)	Immune boost
⑧ Blood circulation improving diet	Fatsia shoots	Stage 4 (13,086HFI)	Immune boost
⑨ Constitution improving diet	Angelica	Stage 4 (11,172HFI)	Immune boost
⑩ Weight loss diet	Braken	Stage 4 (14,183HFI)	Immune boost

- As a result of measuring the antioxidant properties of forest ingredients, menu antioxidant properties, and dietary antioxidant properties, the antioxidant properties of forest ingredients are relatively higher than those of menus and diets.  
- Diet 2, diet 3, and diet 5 correspond to the 3rd stage, indicating normal antioxidant functionality.  
- The remaining seven diets fall into the 4th stage, showing somewhat higher antioxidant functionality.

## IV. Conclusion

- The effects of native plants in Korea are being verified effects not only for antioxidant but also for health functionality.
- In order to make this practical, the National Forest Healing Institute is promoting research to develop and re-discover native plants as healing ingredients by creating forest ecological gardens and planning to use them as forest healing services.
- In the future, more diverse studies are needed to re-examine the edible value of native plants from a forest healing perspective and to spread them widely.

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