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Selection of Goji berry(*Lycium chinense* Mill.) varieties for eco-friendly cultivation

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Introductions

Goji berries are a prominent medicinal plant in Asian countries such as Korea and China. They are used in various applications, including traditional herbal medicine, tea, beverages, functional foods, and cosmetics. Indeed, goji berries are particularly popular for use in teas and beverages, and there is a growing demand for goji berries produced using environmentally friendly cultivation methods that ensure there are no pesticide residues. However, goji berries grown through environmentally friendly methods can be more susceptible to diseases and pests, and their yield may be lower compared to conventional farming practices because synthetic fertilizers cannot be used. Therefore, this study was conducted to select and develop goji berry cultivars that are resistant to diseases and pests while maintaining excellent yield under environmentally friendly cultivation practices.

Materials & Methods

- Tested varieties : Hwasu, Hwagang, Cheongsu, Cheonggang, Cheonggam, Hogwang, and Cheongyang native spices
- Cultivation type : rainproof greenhouse tree form cultivation
- Pest and disease control methods :
  - Organic farming material application in early and multiple pest and disease occurrences (Minimal pest & disease control)
- Cultivation method

spacing planting distance	Amount of applied fetilizer(kg/10a)				Note
	N	P_2O_5	K_2O	Compost	
150×50(cm)	40	30	30	3,000	organic fertilizer application

- Major investigation topics : pest and disease damage rate, yield etc.

Results

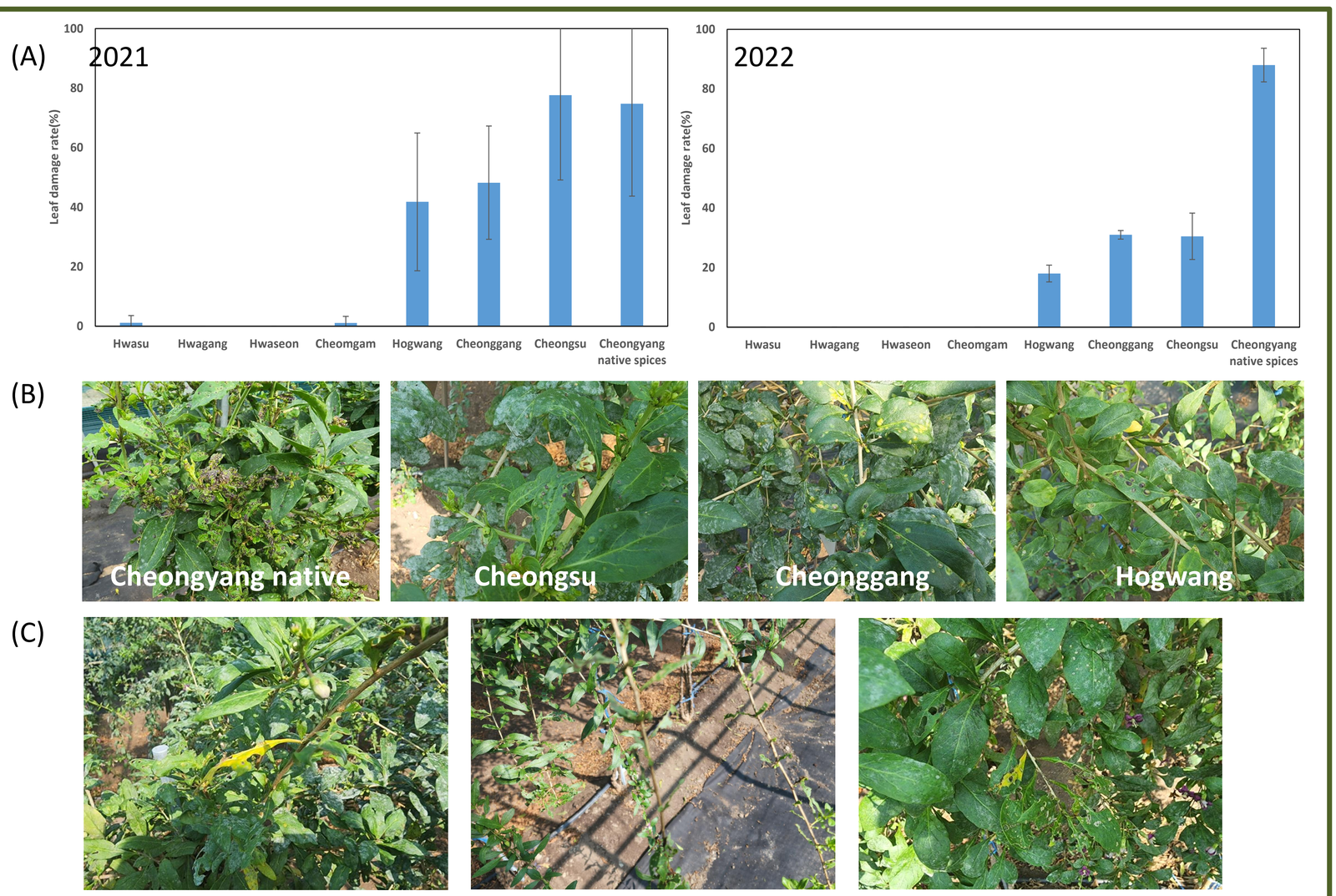

Figure 1. Results of a survey on pest damage related to selection of goji berry varieties suitable for eco-friendly cultivation. Survey of kuko damage rate by year (A), kuko damage symptoms (B) Lema decempunctata damage symptoms (C)

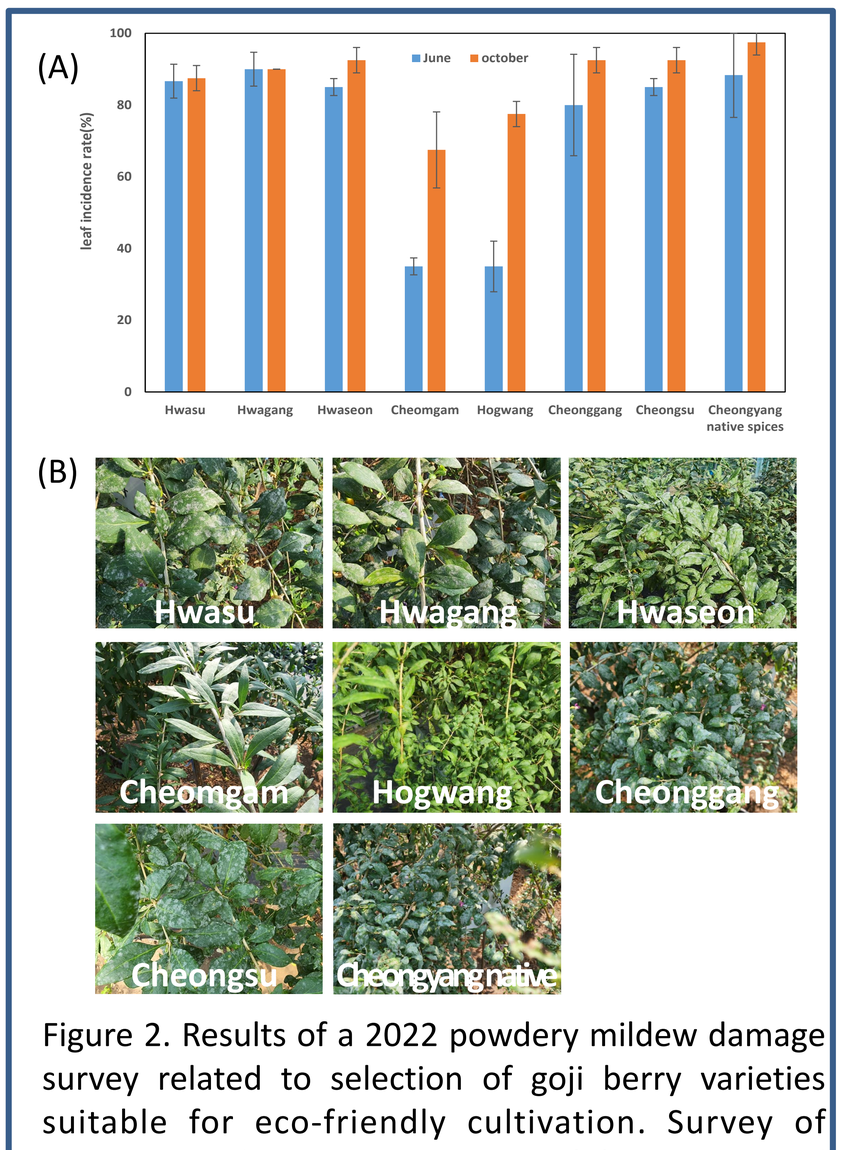

Figure 2. Results of a 2022 powdery mildew damage survey related to selection of goji berry varieties suitable for eco-friendly cultivation. Survey of damage rate by occurrence period (A), symptoms of powdery mildew damage (B)

Table 1. Quantity survey results of dried goji berries by variety

year	Tetraploid varieties				Diploid varieties			
	Hwasu	Hwagang	Hwaseon	Cheomgam	Hogwang	Cheonggang	Cheongsu	Cheongyang native s
2021	190	141	297	88	48	153	63	65
2022	273	300	243	213	147	137	142	113

Conclusions

- The varieties Hwasu, Hwagang, and Hwaseon are suitable for environmentally friendly cultivation due to their resistance to diseases and pests and their high yield potential.
- Additionally, Cheonggam, which is suitable for fresh consumption, can also be cultivated.
- However, it is noted that these varieties exhibited lower yields compared to GAP cultivation, and addressing this issue is a planned focus for future research.