

# 보리호위축병(BaYMV)이병에 따른 쌀보리 품종의 생육특성 및 품질

김양길<sup>1)</sup>, 서재환<sup>1)</sup>, 박종철<sup>1)</sup>, 최재성<sup>1)</sup>, 김수동<sup>1)</sup>, 이중호<sup>2)\*</sup>

<sup>1)</sup>호남농업시험장, <sup>2)</sup>원광대학교

## Growth Characteristics and Grain Quality of Naked Barley Infected by Barley Yellow Mosaic Virus (BaYMV)

Yang-Kil Kim<sup>1)</sup>, Jae-Hwan Seo<sup>1)</sup>, Jong-Chul Park<sup>1)</sup>, Jae-Seong Choi<sup>1)</sup>,  
Soo-Dong Kim<sup>1)</sup> and Joong-Ho Lee<sup>2)\*</sup>

<sup>1)</sup> National Honam Agri. Exp. Sta., RDA, Iksan 570-080, Korea

<sup>2)</sup> Col. of Life Sci. and Nat. Res., Wonkwang Univ.

### Objectives

To identify the growth characteristics and damage of naked barley infected with barley yellow mosaic virus (BaYMV) between resistant and susceptible varieties in habitual field plot of BaYMV.

### Materials and Methods

#### ○ Materials

Barley variety: Baegdong (susceptible) and Naehanssabori (resistant)

#### ○ Method

Field condition : Healthy and habitual field plots of BaYMV

Seeding date : 20th October

Diagnosis : Enzyme linked immunosorbent assay(ELISA)

Investigated items : Growth characteristics, yield components, yield and grain quality

### Results and Discussion

The barley plants showing typical disease symptom were identified BaYMV by enzyme linked immunosorbent assay (ELISA) test. The visual degree (0-9) based on disease symptoms of BaYMV was different as 9 and 1 between susceptible variety Baegdong and resistant variety Naehanssabori, respectively. Susceptible variety, Baegdong showed significant damage in culm length, number of kernel per spike and tiller per square meter but not in 1,000 kernel weight, so these results caused yield reduction to only 80% comparing to the control. Seed germination did not affected by BaYMV infection both susceptible and resistant variety. In grain quality test, abortive grain rate and crude protein contents were significantly increased compared to the control. The relationships between BaYMV infection and growth characteristics showed the negative correlations in culm length, number of tiller, 1000 kernel weight and yield, but it showed the positive correlation in crude protein contents. These results implied that BaYMV can affect not only barley growth and yield but grain quality.

-----  
\* Corresponding author: (Phone) + 82-653-850-6668 (E-mail) [agrojhl@wonkwang.ac.kr](mailto:agrojhl@wonkwang.ac.kr)

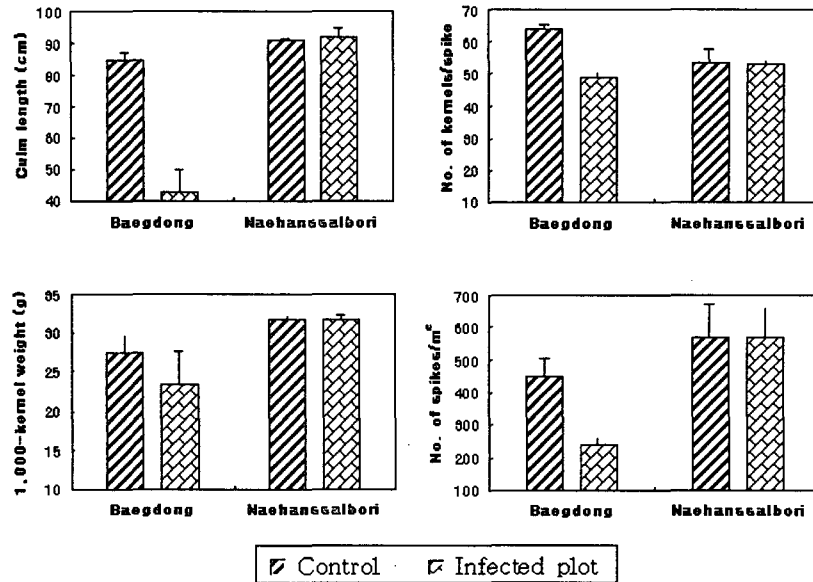


Fig. 1. Differences of yield components between resistant(Naehanssalbori) and susceptible (Baegdong) varieties in plot infected by barley yellow mosaic virus (BaYMV).

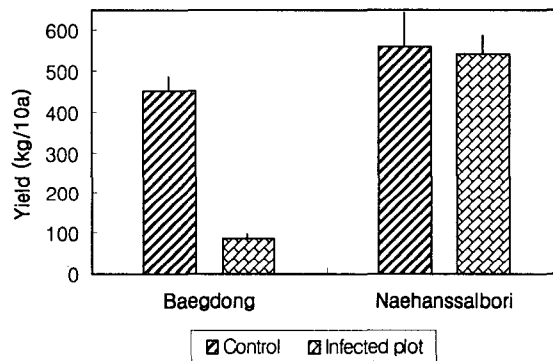


Fig. 2. Difference of yield between resistant (Naehanssalbori) and susceptible(Baegdong) varieties in plot infected by barley yellow mosaic virus (BaYMV).

Table 1. Correlation coefficients among agronomic characteristics and yield components.

Factors	X1	X2	X3	X4	X5	X6	X7	X8	X9
Infection of degree (X1)	-								
Culm length (X2)	-0.963**	-							
No. of spike/m <sup>2</sup> (X3)	-0.820**	0.872**	-						
No. of kernels/spike (X4)	-0.631*	0.470	0.122	-					
1,000 kernel/spike (X5)	-0.718**	0.841**	0.787**	0.084**	-				
Germination percentage (X6)	0.201	-0.283	-0.478	0.148	-0.292	-			
Assortment percentage (X7)	-0.825**	0.768**	0.704*	0.528	0.504	-0.418	-		
Crude protein content (X8)	0.834**	-0.813**	-0.762**	-0.444	-0.587*	0.346	-0.935**	-	
Yield (X9)	-0.937**	0.961**	0.964**	0.338	0.816**	-0.360	0.797**	-0.841**	-

\*, \*\* : Significant at 5% and 1% level, respectively.