

Phenotype of oilseed rape plants with symptoms of infection by the pathogenic fungus *Sclerotinia sclerotiorum* – the comparison of four inoculation methods

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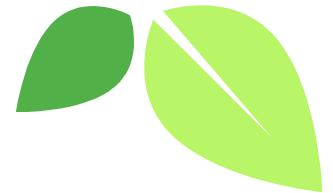
Introduction

- The fungus *Sclerotinia sclerotiorum* is a damaging pathogen of almost all crops, except for cereals.
- Sclerotinia stem rot caused by *S. sclerotiorum* is difficult to control without the use of pesticides, there are no sources of strong genetic resistance.
- The new directions of plant breeding draw attention to the significant influence of plant morphology on the intensity of infectious diseases.



Aim

The aim of the experiment was to evaluate phenotypic effects of *Sclerotinia sclerotiorum* after the application of four inoculation methods under field conditions



Materials & Methods

- Experimental field of IPG PAS in Cerekwica, in 2022.
- Completely randomized block experiment design.
- 16 cultivars and best breeding materials of winter oilseed rape from Polish breeders.
- Individual plots of 22.5 sq. m area each. Three replicates.
- 960 plants were subjected to biometrical measurements and individual seed yield study.

➤ Control and four inoculation methods at flowering stage (BBCH 65):

1) spraying with homogenized mycelium of *S. sclerotiorum* at a concentration of 1×10^7 fragments in 1 ml and sprinkling leaves with rapeseed petals; 2) spraying with homogenized mycelium of *S. sclerotiorum* at a concentration given above. and sprinkling with filter paper discs; 3) inoculation with agar discs overgrown with the mycelium of *S. sclerotiorum*, 4) inoculation with wheat kernels overgrown with *S. sclerotiorum*.

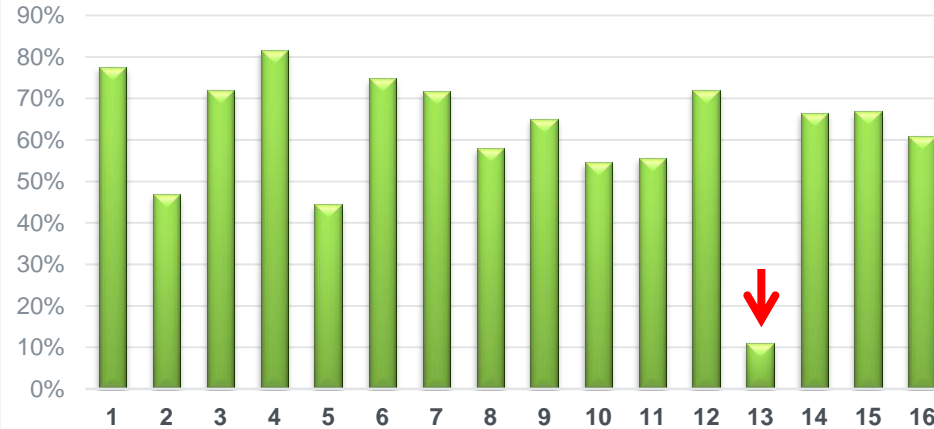


Results

List of cultivars and breeding lines:

1. Neon F1
2. Copernicus F1
3. Kepler F1
4. Gemini F1
5. BOH 8718
6. PT 303
7. MAH 9121
8. Mars
9. Monolit
10. Kwazar
11. Chrobry
12. Bazalt
13. **Bono**
14. BKH6221
15. BKH6321
16. PX 141

Yield decrease of OSR cultivars after stem inoculation by *Sclerotinia sclerotiorum*



Conclusion

1. Cultivar **Bono** was the most resistant to *Sclerotinia* stem rot.
2. **Stem inoculation** was the most informative but also the most laborious inoculation technique.



The experiment was established as a part of the research project for biological progress in plant production granted to IPG PAS by the Ministry of Agriculture and Rural Development, based on the decision no. DHR.hn.802.2.2022, task 25. Three additional inoculation methods were used in the experiment, thanks to the ISPP Resilience Bursary Fund program and PAS / NAS support program for scientists from Ukraine.