

# CROSS PATHOGENICITY OF *PLECTOSPHAERELLA CUCUMERINA* ISOLATED FROM SUNFLOWER BROOMRAPE AND THE OTHER HOSTS

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## Abstract

*Orobanche cumana* Wallr. (broomrape; synonym *Orobanche cernua* Loefl.) is a parasitic plant that has become a serious threat to sunflower production in Inner Mongolia. In 2015, we observed some diseased sunflower broomrape with spindle-shaped lesions on stem in Wusutu village, Chahaeryouyi town, Wulanchabu city, Inner Mongolia. Fungal isolates were acquired for morphological and molecular identification with ITS primer. The results showed that the pathogen was morphologically identified as *Plectosphaerella cucumerina* (Lindf.) W. Gams. Results of BLAST indicated 100% similarity with the sequence of *P. cucumerina* isolated from endive. *P. cucumerina* is well known as a soil-borne pathogen and decaying tissues of a diverse range of plants. To clarify the biological morphology and cross pathogenicity, *P. cucumerina* from sunflower broomrape, sunflower, potato and tomato were selected to study the colony and conidia morphology, growth rate, conidia production, crude toxin concentration and pathogenic specificity. The results showed that variable results on the colony and conidia morphology, growth rate, conidia production and crude toxin concentration among all tested isolates. The pathogenic specificity was studied using the stem-wound inoculation way. Fourteen days post inoculation (dpi), all isolates showed the highest virulence on sunflower, followed by sunflower broomrape, potato and tomato, for example, WST-1 which was isolated from sunflower broomrape caused the largest gray to black lesions (average length 2.40 cm) on sunflower, but the lesions on sunflower broomrape, potato and tomato were smaller, the average length were 2.28, 0.66 and 0.24 cm respectively. In conclusion, the pathogenicity of *P. cucumerina* on the different hosts is variable. All isolates showed the strongest pathogenicity on sunflower, and less pathogenicity on tomato.

**Keywords:** *Orobanche cumana* Wallr., *Plectosphaerella cucumerina*, cross pathogenicity