

## Diseases Caused by Fungi and Fungus-Like Organisms

### First Report of Preharvest Fruit Rot of Strawberry Caused by *Botrytis cinerea* in Kazakhstan

A. Ismagulova,<sup>1</sup> A. D. Spanbayev,<sup>1</sup> Z. Tulegenova,<sup>2</sup> and C. Eken<sup>3,†</sup>

<sup>1</sup> Department of General Biology and Genomics, Faculty of Natural Sciences, L. N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan

<sup>2</sup> Department of Biotechnology and Microbiology, Faculty of Natural Sciences, L. N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan

<sup>3</sup> Department of Agricultural Biotechnology, Faculty of Agriculture, Aydın Adnan Menderes University, Aydın, Turkey

Plant Dis. 105:213, 2021; published online as <https://doi.org/10.1094/PDIS-03-20-0525-PDN>. Accepted for publication 11 August 2020.

Strawberry (*Fragaria × ananassa* Duch.) is an important soft fruit crop in Kazakhstan and is cultivated on more than 1,000 ha each year. Gray mold caused by the fungus *Botrytis cinerea* is one of the most important fruit rot diseases of cultivated strawberry worldwide. In July 2017, strawberry fruit with gray mold symptoms (approximately 40% incidence) were observed in strawberry fields of Semey province in Kazakhstan. Fruit had light brown lesions that enlarged quickly and were covered with a gray, fuzzy mass of spores and mycelium followed by a soft rot. To isolate the causal agent, sporulating lesions from symptomatic fruit were cut into 3- to 5-mm-diameter pieces, surface disinfested for 1 min in 2% NaOCl, plated onto potato dextrose agar (PDA), and incubated at 25°C for 4 to 5 days. Fungal colonies that were consistently isolated were transferred to PDA using single-spore isolation. Fungal colonies were colorless at first and became gray to brown when the conidiophores and conidia developed. Conidia measured 4.99 to 9.36 × 3.70 to 6.36 µm and were colorless to pale-brown, one-celled, ellipsoidal, globose, and borne on tree-like

conidiophores. The fungus was tentatively identified as *B. cinerea* (Ellis 1971). In total, 56 isolates of *B. cinerea* were obtained. The internal transcribed spacer region of the ribosomal RNA was amplified using primers ITS1/ITS4 (White et al. 1990) and sequenced (GenBank accession no. MT150132). The sequence was compared with the GenBank database through nucleotide BLAST search, and the isolate (KAB-14) showed 99.62% homology to *B. cinerea* (MH992149.1). On the basis of morphological data and nucleotide homology, the isolate was determined to be *B. cinerea*. One isolate (KAB-14) of *B. cinerea* and strawberry fruit cultivar Sabrina were used for assessing pathogenicity. Pathogenicity tests were confirmed by inoculation of 20 healthy strawberry fruit with single PDA 7-mm-diameter plugs containing actively growing mycelium and incubated at 25°C in airtight plastic bags. Strawberry fruit had been disinfested by spraying fruit with 2% NaOCl and then rinsed two times with sterile distilled water. Noncolonized PDA plugs were used for 20 control fruit. After 2 days of incubation, typical gray mold symptoms were observed on inoculated fruit except controls. The pathogenicity test was repeated twice with identical results. Koch's postulates were fulfilled by the reisolation of *B. cinerea* from symptomatic fruit. After reisolation on PDA, morphological characteristics were similar to the original isolate. To the best of our knowledge, this is the first report of *B. cinerea* causing preharvest fruit rot of strawberry in Kazakhstan. This disease could have a high economic impact as strawberry production increases in Kazakhstan.

#### References:

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The author(s) declare no conflict of interest.

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**Keywords:** strawberry, *Botrytis cinerea*, gray mold

<sup>†</sup>Indicates the corresponding author.  
E-mail: cafer.eken@adu.edu.tr (C.E.)