



# First report of anthracnose caused by *Colletotrichum truncatum* on *Digitaria insularis* in Brazil

Ísis Tikami<sup>1,2</sup> · Riccardo Baroncelli<sup>2,3</sup> · Máisa Ciampi-Guillard<sup>1</sup> · Túlio V. Martins<sup>1</sup> · Thaís R. Bouffleur<sup>1</sup> · Nelson S. Massola Júnior<sup>1</sup>

Received: 21 December 2022 / Accepted: 23 June 2023 / Published online: 17 July 2023  
© The Author(s) under exclusive licence to Società Italiana di Patologia Vegetale (S.I.Pa.V.) 2023

**Keywords** Sourgrass · Weeds · Soybean anthracnose · Primary inoculum

*Digitaria insularis* (L.) Fedde (sourgrass) is a perennial monocotyledon weed easily found in soybean fields in Brazil. The emergence of herbicide-resistant sourgrass biotypes is common, making it difficult to control (Gonçalves Netto et al. 2021). In March 2019, yellow elongated necrotic spots were detected on sourgrass leaves, touching full mature soybean plants with anthracnose symptoms in a commercial soybean field in Brazil (23°07'34.4"S, 47°19'39.4"W), with around 200 sourgrass plants ha<sup>-1</sup> and 20% incidence of soybean anthracnose. Symptomatic leaf tissues of sourgrass were randomly sampled, disinfected (70% ethanol for 30 s, 1% sodium hypochlorite for 2 min) and incubated in a moist chamber at 25 °C with photophase of 12 h. After three days, a single-spore isolate (LFNDI01) was obtained from acervuli containing falcate conidia (20.24 to 26.67 × 3.33 to 4.76 µm, n=30). Total DNA was extracted and β-tubulin (TUB2), glyceraldehyde 3-phosphate dehydrogenase (GAPDH), histone H3 (HIS3), and the internal transcribed spacer (ITS) regions were amplified, sequenced and deposited in GenBank (accession numbers OP597269, OP597268, OP597270 and OP531846). The isolate LFNDI01 clustered with *Colletotrichum truncatum* (Schwein.) Andrus

and Moore epitype (CBS 151.35) with the Bayesian Posterior Probability (BPP) of 1.00. Pathogenicity tests were performed with 30 days-old sourgrass plants sprayed with a conidial suspension of the LFNDI01 isolate (10<sup>5</sup> conidia mL<sup>-1</sup>) or mock inoculated with sterile distilled water, and incubated at 25 °C for 7 days, when typical anthracnose symptoms were observed. Mock inoculated plants remained asymptomatic. *C. truncatum* was successfully reisolated from sourgrass leaves. Since *C. truncatum* is the main species associated with symptomatic soybean plants with anthracnose (Bouffleur et al. 2021), this report indicates that sourgrass may play a role in the soybean anthracnose epidemiology as a primary inoculum source. To the best of our knowledge, this is the first report of *C. truncatum* causing anthracnose on sourgrass.

**Funding** The Coordination for the Improvement of Higher Education Personnel (CAPES), Grant/ Award Numbers: 88882.328572/2019-01 and 88887.695424/2022-00; The São Paulo Research Foundation (FAPESP), Grant/ Award Numbers: 2017/09178-8 and 2021/01606-6; The Brazilian National Council for Scientific and Technological Development (CNPq), Grant/ Award Number: 142,376/2020-5; Luiz de Queiroz Agrarian Studies Foundation.

**Statements and declarations** The authors have no relevant financial or non-financial interests to disclose.

T. R. Bouffleur and N. S. Massola share the last authorship.

✉ Ísis Tikami  
i.tikami@usp.br

- <sup>1</sup> Department of Plant Pathology and Nematology, Luiz de Queiroz College of Agriculture (ESALQ), University of São Paulo (USP), Piracicaba 13418-900, Brazil
- <sup>2</sup> Department of Agri-Food Science and Technology, University of Bologna, Bologna 40127, Italy
- <sup>3</sup> Center for Studies on Bioinspired Agro-Environmental Technology, Università di Napoli Federico II, Portici 80055, Italy

## References

- Bouffleur TR, Ciampi-Guillard M, Tikami Í, Rogério F, Thon MR, Sukno SA, Massola Júnior NS, Baroncelli R (2021) Soybean anthracnose caused by *Colletotrichum* species: current status and future prospects. *Mol Plant Pathol* 22:393–409. <https://doi.org/10.1111/mpp.13036>
- Gonçalves Netto A, Cordeiro EMG, Nicolai M, Carvalho SJP, Ovejero RFL, Brunharo CACG, Zucchi MI, Christoffoleti PJ (2021) Population genomics of *Digitaria insularis* from soybean areas

in Brazil. Pest Manag Sci 77:5375–5381. <https://doi.org/10.1002/ps.6577>

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.