

BOOK REVIEW

Gallegly M.C., Hong C. 2008. *Phytophthora: Identifying Species by Morphology and DNA Fingerprints*. APS Press –The American Phytopathological Society, St. Paul, Minnesota, 158 pp. ISBN 978-0-89054-364-1

This compendium will be of great interest and practical value to phytopathologists and plant disease diagnosticians. Fungi belonging to the genus *Phytophthora* are devastating pathogens of numerous agronomic, horticultural and forest plant species worldwide. In the past *Phytophthora infestans* was of big concern as a causative agent of potato late blight. Nowadays, *Phytophthora ramorum* and *P. cinnamomi* cause great concern and losses to forest and deciduous trees and to international wood trade.

The basic problem in prevention and control of plant diseases is a quick and reliable identification of the causative agent and this compendium provides a needed help in that matter. All former "identification keys" for species belonging to the *Phytophthora* genus were based on shape and size of sporangia. The authors of the reviewed book developed and propose the key for species identification based on a very specific and reliable DNA fingerprints features of species belonging to the genus *Phytophthora*.

In the „Preface“ (p. VII–VIII) the authors make a remarque that In 1983 only 43 *Phytophthora* species were known but nowadays 100 species are recognized. The authors emphasize that they included into the key only those species which they examined live in cultures and prepared their DNA fingerprints.

In Chap. 1 „Morphological key“ (p. 1–13) the authors explain the history of key construction and the grounds for separation homothallic and heterothallic species. This chapter contains three appendixes: Appendix 1 – „General procedures for morphological identification“ (p. 6), Appendix 2 – „Illustration of definitive morphological characters“ (p. 7–14), Appendix 3 – „Growth media and methods“ (p. 15).

In Chap. 2 „The DNA fingerprint key“ (p. 16–21) the authors emphasize that molecular fingerprints for *Phytophthora* species has been sought by numerous mycologists and plant pathologists in order to increase the speed and accuracy of isolate identification. The development of molecular technologies including polymerase chain reaction (PCR) and single-strand conformational polymorphism (SSCP) allowed authors to prepare a very reliable key that includes 59 species. For the Chap. 2 the authors provide two appendixes: (1) „The PCR-SSCP protocol“ (p. 20–21) and (2) „A partial list of other molecular fingerprinting techniques“ (p. 21).

The voluminous Chap. 3 „Morphological characters and DNA fingerprints of individual species“ (p. 22–146) makes the main part of the handbook. According to the authors „The Chapter 3 is the heart of this book. The morphological description is used to place a species in the chapter 1 key and the DNA fingerprint is used to place species in the Chapter 2 key“. The authors emphasize that they have searched diligently and used cultures of „bona fide species“ and that all photographs selected to show morphology of species were taken with the same camera using 97x oil immersion or 46x dry objectives.

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The following *Phytophthora* species have considered in his chapter: *P. alni* (p. 24–25), *P. boehmeriae* (p. 26–27), *P. botryana* (p. 28–29), *P. cactorum* (p. 30–31), *P. cajani* (p. 32–33), *P. cambivora* (p. 34–35), *P. capsici* (p. 36–37), *P. cinnamomi* var. *cinnamomi* (p. 38–39), *P. cinnamomi* var. *parvoispora* (p. 40–41), *P. citricola* I (p. 42–43), *P. citricola* II (p. 44–45), *P. citricola* III (p. 46–47), *P. citrophthora* (p. 48–49), *P. clandestiana* (p. 50–51), *P. calocasiae* (p. 52–53), *P. cryptogea* (p. 54–55), *P. drechsleri* (p. 56–57), *P. erythrosetica* (p. 58–59), *P. europea* (p. 60–61), *P. fragariae* (p. 62–63), *P. hedraiaandra* (p. 64–65), *P. heveae* (p. 66–67), *P. hibernalis* (p. 68–69), *P. humicola* (p. 70–71), *P. idaei* (p. 72–73), *P. ilicis* (p. 74–75), *P. infestans* (p. 76–77), *P. insolita* (p. 78–79), *P. inundata* (p. 80–81), *P. iranica* (p. 82–83), *P. katsurae* (p. 84–85), *P. lateralis* (p. 86–87), *P. meadii* (p. 88–89), *P. medicaginis* (p. 90–91), *P. megakarya* (p. 92–93), *P. megasperma* I (p. 94–95), *P. megasperma* II (p. 96–97), *P. megasperma* III (p. 98–99), *P. melonis* (p. 100–101), *P. mexicana* (p. 102–103), *P. mirabilis* (p. 104–105), *P. nemorosa* (p. 106–1107), *P. nicotianae* (p. 108–109), *P. palmivora* (p. 110–111), *P. phaseoli* (p. 112–113), *P. pistaciae* (p. 114–115), *P. porri* (p. 116–117), *P. primulae* (p. 118–119), *P. pseudosyringae* (p. 120–121), *P. pseudotsugae* (p. 122–123), *P. quercina* (p. 126–127), *P. ramorum* (p. 128–129), *P. rubi* (p. 130–131), *P. sojae* (p. 132–133), *P. syringa* (p. 134–135), *P. tentaculata* (p. 136–137), *P. trifolii* (p. 138–139), *P. tropicalis* (p. 140–141),

Appendix to Chapter 3 has a form of table titled „Host, Geographic Origin, Provider, and Culture Deposits of Key Isolates“ (p. 142–146) and contains such useful information like: SSCP, key isolates (MG and CH), mating type, host or substrate, geographic origin, year, provider and culture deposit code.

The book is also provided in „Glossary“ (p. 147–148), „Literature Cited“ (115 titles) (p. 149–153) and „Index“ (p. 155–158).

Without any doubt this treatise on genus *Phytophthora* will be greatly welcomed by persons working on plant diseases. It provides broad information and advises on extremely effective and exact method of identification of *Phytophthora* species which are responsible for great losses in plant production and are considered as quarantine barriers in international trade of agricultural and forestry products and wood commodities.

Certainly this book will be broadly used by specialists and should be in each agricultural library. It is also certain that this book will stimulate the mycologists and phytopathologists to prepare similar determinative keys based on DNA fingerprints for other fungi genera important for plant protection and plant quarantine.

Jerzy J. Lipa
Department of Biocontrol and Quarantine
Institute of Plant Protection – National Research Institute
Władysława Węgorka 20, 60-318 Poznań, Poland
J.J.Lipa@ior.poznan.pl