
Contents

Evolutionary Roots of Fungi

- 1 The Protistan Origins of Animals and Fungi 3
MARTIN CARR, SANDRA L. BALDAUF
- 2 Microsporidia – Highly Reduced and Derived Relatives of Fungi 25
BRYONY A.P. WILLIAMS, PATRICK J. KEELING
- 3 Environmental DNA Analysis and the Expansion of the Fungal
Tree of Life 37
MEREDITH D.M. JONES, THOMAS A. RICHARDS

Evolution of Signalling in Fungi and Fungal-Like Organisms

- 4 Evolution of Signalling and Morphogenesis in the Dictyostelids 57
PAULINE SCHAAP
- 5 Function and Evolution of Pheromones and Pheromone Receptors
in Filamentous Ascomycetes 73
STEFANIE PÖGGELER
- 6 Mating Type in Basidiomycetes: Unipolar, Bipolar, and Tetrapolar
Patterns of Sexuality 97
URSULA KÜES, TIMOTHY Y. JAMES, JOSEPH HEITMAN

Evolution of Mutualistic Systems and Metabolism in Fungi

- 7 Evolution of the ‘Plant-Symbiotic’ Fungal Phylum, *Glomeromycota* 163
ARTHUR SCHÜßLER, CHRISTOPHER WALKER
- 8 Fruiting Body Evolution in the Ascomycota: a Molecular Perspective
Integrating Lichenized and Non-Lichenized Groups 187
IMKE SCHMITT
- 9 Genomic and Comparative Analysis of the Class Dothideomycetes 205
JAMES K. HANE, ANGELA H. WILLIAMS, RICHARD P. OLIVER
- 10 Evolution of Genes for Secondary Metabolism in Fungi 231
INES TEICHERT, MINOU NOWROUSIAN

- 11 Carbonic Anhydrases in Fungi and Fungal-Like Organisms –
Functional Distribution and Evolution of a Gene Family 257
SKANDER ELLEUCHE

Evolutionary Mechanisms and Trends

- 12 Evolution of Mating-Type Loci and Mating-Type Chromosomes
in Model Species of Filamentous Ascomycetes 277
CARRIE A. WHITTLE, HANNA JOHANNESSON

- 13 Evolution of Special Metabolism in Fungi: Concepts, Mechanisms,
and Pathways 293
CHRISTINE SCHIMEK

Biosystematic Index 331

Subject Index 337

Evolution of Fungi and Fungal-Like Organisms

Pöggeler, S.; Wöstemeyer, J. (Eds.)

2011, XIX, 345 p. 60 illus., 10 illus. in color., Hardcover

ISBN: 978-3-642-19973-8