

Index

A

Above ground endophytes, 198
Abscisic acid, 158
ACC deaminase activity, 158
ACP
 acyl-carrier protein, 312
Actinobacteria, 31, 171
Actinovate, 180, 185
Acylase, 49
Acyl-carrier protein, 312
Adhesion, 206
Aerotaxis, 106
Aflatoxin, 312
Agarose Gel Electrophoresis, 315
Agricultural intensification, 146
Alkylresorcinols, 101
 α -glucosidation, 323
Amidohydrolase, 48
Amplified DNA, 315
Anthropocene, 100
Anti-cancer Agents, 320
Anti-cancer metabolites
 azadirachtin A, B, 10
 camptothecin, 10
 citral B, 10
 cytochalasin, N, 10
 diosgenin, 10
 gliotoxin, 10
 germacrane-type sesquiterpenes, 10
 ginkgolide-B, 10
 huperzine A, 10
 penicillide derivatives and α -pyrone analogues, 10
 piperine, 10
 podophyllotoxin, 10
 taxol (Paclitaxel), 10
Anti-fungal agents, 323
Anti-influenza viral drugs, 320
Anti-oxidant Agents, 324

Anti-vertebrate alkaloids, 306
Apoplast, 118
Arabidopsis thaliana, 64
Arbuscular Mycorrhiza Fungi (AMF), 102
Arbuscular mycorrhizas, 290
Arbuscules, 272
Ascomycete, 172, 268
Ascomycota, 306
Ascomycotina, 134
ATP-binding cassette, 115
Attack-defense-counter defense strategies, 61
Azadirachtins, 325

B

Bacterial Endophyte, 198
Bacterial wilt, 183
Bakanae disease, 177
Balansiaceae, 305
Barley, 172
Basidiomycetes, 268
Basidiomycotina, 134
BCA
 biological control agent, 215
Beauveria bassiana, 153
 endophytes, 77
Below-ground endophytes, 199
Bioactive compound large scale production, 318
Bioactive Compounds
 shelf life, 318
Bio-factories, 318
Biofilms, 206
Bio-fungicides, 186
Biological nitrogen fixation, 101
Bio-remediation, 289
Biostimulation, 211
Blast disease, 176
BNF. *See* Biological nitrogen fixation
Boletiniellus merulioides, 279

- Botrytis cinerea, 257
 Brassicaceae, 281
 Brown spot, 177
Burkholderia pyrrhocina, 153
- C**
- Cabbage, 182
 Caesalpinioideae, 31
 Camptothecin, 2, 322
Capsicum annuum, 183
 Carbohydrate, 271
 Cathepsin, 63
 Cereal crops, 172
 Chemotaxic fungal, 275
 Chemotherapy, 304
 Chickpea, 178
 Chili pepper, 183
 Clavicipitaceous, 306
Clonostachys rosea
 endophytes, 77
 Coccidioid meningitis, 323
Colletotrichum falcatum, 66
 Colonization, 208
 Corky root disease, 179
 Crack entry, 29
 Crop productivity, 194
 Crown rust, 173
Cryptococcus neoformans, 323
 Cucumber, 181
 Culture-dependent methods, 26
 Cupressaceae, 128
 Cupressoideae, 128
 Cutaneous dermatophytes, 323
 Cytomegalovirus, 320
- D**
- Dark glands, 62
 Dehydratase, 312
Dendrobium officinale, 323
 Diabetes mellitus, 323
 Diabetic complications
 retinopathy, neuropathy, nephropathy,
 cardiovascular complications, and
 ulceration, 323
 Dipterocarps, 289
 Disease management, 214
 Drought tolerance, 157
- E**
- Early colonizing, 288
 Ecological intensification, 195, 209
 Ecological intensification of agriculture (EIA),
 194, 195
 Ecological niche, 214
- Ectomycorrhiza, 133, 276
 Eggplant, 184
 EIPF, 281
 Endophyte, 2, 26, 60, 146, 304
 actinobacteria, 173
 biological activities, 15
 biology, 127
 bioremediation, 157
 biotechnology, 127
 colonization, 146
 diversity, 4
 isolation, 8
 mechanisms of action, 149
 metabolites, 9
 origin, evolution, 3
 stress tolerance, 157
 Endophyte taxonomic groupings, 314
 Endophytic
 secondary metabolites, 72
 Endophytic fungi, 65
 colonization, 147
 human health, 82
 morphology, 67
 Endophytic invasion, 207
 Endophytic metabolites
 vincristine, vinblastine, camptothecin,
 quinine and taxol, 9
 Endophytic Microflora
 diversity, 148
 Endophytism, 127, 206
 Endo-rhizospheric bacteria, 194
 Epiphytic microorganisms, 236
 Ericaceae, 276
 Ericales, 268
 Ethylene, 277
 Eurasian grapevine, 233
 Eutypa, 257
- F**
- Fabaceae, 31
 Fermentor, 318
 Field peas, 178
 Firmicutes, 31
 Flavonoids, 101
 Food web, 276
 Formononetin, 287
 Fourier transform ion cyclotron resonance, 2
 FT-ICR. *See* Fourier transform ion cyclotron
 resonance
 Fumonisin, 312
 Fungal endophytes
 diversity, 65
 genetic diversity, 66
 Fungal Metabolomics

endophytic, 68
 Fungal symbiosis, 282
 Fungicide, 174, 234

G

Gammaproteobacteria, 34
 Geldanamycin-resistant actinobacteria, 185
 Genes
 protein encoding, 112
 GFP, 185
 Gibberellins, 158, 212
 Glomalin, 280, 283, 284
 Grapevine, 237
 Grass endophytes, 305
 Green pea, 178
 Green revolution, 196

H

Hallucinogens, 304
 Halogenated funanone, 46
Hevea brasiliensis, 215
 Histoplasmosis, 323
 HIV/AIDS, 320
 Hydrolytic enzymes, 42
 Hydroxycinnamic acid, 101
 Hyperglycemia, 323
 Hypogeal, 289

I

IMG/MER. *See* Integrated Microbial Genomes and Microbiome
 Indole-3-acetic acid, 236
 Induced Systemic Resistance (ISR), 113
 Inducible mutualists, 77
 Infection, 238
 Insecticidal Agents, 324
 Intensive farming, 195
 Integrated Microbial Genomes and Microbiome, 103
 Intercellular signal molecule, 45
 Intra-specific communication, 44
 Invasion, 207
 Isoprenoid, 309
 ISR-inducing bacteria, 259

K

KEGG Ortholog, 104
 Ketones, 153
 Ketoreductase, 312

L

Lac promoter, 51
 Lactonases, 48
 Leaf blight disease, 176

Leaf rust, 172
 Lecanoric acid, 63
 Legume Nodules, 30
 Leotiomyces, 131
 Lettuce, 185
 Leucine- Rich-Repeat, 64
 Lithium chloride EDTA Tris HCL (LETH), 314
 LRR. *See* Lucine-rich repeat
Lux operon, 47

M

Major facilitator superfamily, 115
 MALDI. *See* Matrix Assisted Laser Desorption ionization
 Malonyl-CoA, 312
 MAP kinase, 60
 Matrix Assisted Laser Desorption ionization, 2
 MDR. *See* multi drug resistant
 MDRS. *See* Multi drug resistant strains
 Metabolic
 Profiling, 69
 Metabolites
 aliphatic compounds, 319
 alkaloids, 319
 amides, 319
 amines, 319
 and quinols, 319
 chinones, 319
 chlorinated metabolites benzopyranones, 319
 cytochalasines, 319
 depsipeptides, 319
 diterpenes, 319
 enniatiines, 319
 extraction, 69, 319
 flavonoids, 319
 furandiones, 319
 indole derivatives, 319
 isocoumarin derivatives, 319
 isocumarines, 319
 lignans, 319
 peptides, 319
 phenol, 319
 phenolic acids, 319
 phenols, 319
 phenyl propanoids, 319
 polyketones, 319
 pyrrolizidines, 319
 quinines, 319
 sesquiterpenes, 319
 steroids, 319
 terpenoids, 319
 Metagenomic analysis, 148

- Metagenomics, 237
Metarhizium robertsii, 281
Methylmalonyl-CoA, 312
6-methylsalicylic acid, 312
Mevalonic acid Pathway, 73
Microbeads, 184
Microbe–plant signaling, 28
Molecular signalling, 283
Multi drug resistant, 60
Multi drug resistant strains, 76
Mutualistic trigger, 63
Mycorrhizae, 268, 277
Mycorrhiza inoculants, 290
Mycostop, 180
- N**
N-acyl homoserine lactone, 43, 207
N-formilonine, 325
Niche acquisition, 209
Niche stabilization, 209
Nicotiana tabacum, 157
Nitrogen fixation, 178
N limitation, 120
Nodules, 30
Non-Balansiaceous endophytes, 306
Non-legume Plants, 26
Nonprotein amino acid, 51
Non-rhizobial endophytes, 26, 200
Non-root Nodulating Endophytes, 204
Non-symbiotic nodule endophytes, 34
Nox complex
 NoxA, NoxR, RacA, 60
NRP-synthetase, 310
Nutrient management, 212
Nutrient uptake, 283
- O**
Ochratoxin A (OTA), 312
Oomycete, 173
Orsellinic acid, 63
Oxidoreductase, 50
- P**
PAMPs. *See* Pathogen-associated molecular patterns
Pathogen-associated molecular patterns, 100
Pathogenicity related protein
 PR-1, PR-2, PR-5, 152
Paxiline, 325
PCP
 peptide carrier protein, 310
Pectobacterium carotovorum, 51
Pepper, 183
Pestalothel C, 320
Pesticides, 234
PGPR
 plant growth-promoting rhizobacteria, 196
pH, 317
Phenolic compounds, 101
4-Phospho-pantetheinylation transferases, 310
Phosphorus deficiency, 149
Phosphotransferase system, 115
Phosphotriesterase-like lactonase, 48
Photosynthesis, 272
Phyllosphere
 endophyte, 60
Phytohormone, 26, 42, 154
 Indole acetic acid, 155
Phytohormone identical metabolite, 197
Phytohormone like metabolite, 211
Phytoplasma, 258
Phytoremediation, 157
Pierce's disease, 258
PKSs
 polyketide synthase, 311
Plant domestication, 100
Plant exudates, 275
Plant growth-promoting rhizobacteria, 196
Plant hormone
 abscisic acid, 120
 auxin, 120
 brassinosteroid, 120
 cytokinine, 120
 ethylene, 120
 gibberellins, 120
 jasmonic acid, 120
 salicylic acid, 120
 volatile organic compounds, 120
Plant hormone signaling pathways, 208
Plant host defence mechanism, 43
Plant–microbe association, 194
Plant–microbe cross talk, 28
Plant–microbe interactions, 41
Plant Pathogens, 152
Plant Protection, 9
Plug, 285
Polyketide, 309
Polyketide Pathway, 73
Polyoma virus, 320
Population density, 43
Potato, 184
Powdery mildew, 172, 178
4pptase
 4-phospho-pantetheinylation transferases,
 310
Productivity enhancement, 215
Proteobacteria, 31
Pseudomonas, 152

Pseudomonas aureofaciens, 44
Pseudomonas fluorescens, 215
Pseudomonas pseudoalcaligenes, 158
 Putrescine, 118
Pyricularia grisea, 176
 Pyriform chlamydospores, 308

Q

Quorum quenching, 45
 Quorum sensing, 43, 206
 Quorum-sensing signals, 152
 Quorum sensing system, 28

R

Receptor-like kinases, 64
 Redox-regulation, 106
 Regulon
 RegB, RegA, 106
Rhedia brasiliensis, 324
 Rhizobia, 27, 179
Rhizoctonia solani, 182
 Rhizosphere
 endophyte, 60
 Rhizoxin, 102
 Rice, 176
 Rice sheath blight, 177
 RLKs. *See* Receptor-like kinases
 Root endophyte, 281
 Root endophytic, 173
 Root exudates, 283
 Root Nodulating Endophytes, 200
 Root phosphatase activity, 282

S

S-adenosyl methionine, 118
 Salinity Concentration, 317
 Secalonic acid D, 322
 Secondary metabolites, 42
 Shikimate-Chorismate Pathway, 74
 Siderophore, 156, 158, 255
 Signalling molecules, 43
 Signal Transduction, 106
Sitka spruce, 279
 Snap pea, 178
 Soft rot disease, 52
 Soil Aggregation, 284
 SoilBuilder, 174
 Soil fertility, 286
Solanum tuberosum, 184

Spore density, 272
 Spore formation, 278
 Sporocarps, 289
 SSH. *See* Suppression subtractive hybridization
 Stem rust, 173
 Sugar pea, 178
 SuperBio, 174
 Super strains, 290
 Susceptible, 285
 Sweet peas, 178
Swietenia macrophylla, 324
 Symbioses, 289
 Systemic acquired resistance, 147

T

Tan spot, 172
 Taxol, 61, 137, 322
Taxus brevifolia, 61
 Terpenoids, 153
 Tomato, 179
 Transcriptional Regulators, 112
 Tripartite interactions, 103

U

Uptake of nitrogen, 149

V

Vanillic acid, 240
 Vermicompost, 178
Verticillium wilt, 184
 Vesicular-arbuscular mycorrhizas, 268
Vitis vinifera, 233

W

Wheat, 172
 Wickerols A, 320
 Wire stem, 182
 Wrapping, 283

X

Xanthomonas oryzae, 176
 Xenobiotic remediation, 157

Z

Zearalenone, 312
 Zygomycetes, 268
 Zygomycetous, 134