

CONTENTS

INTRODUCTION	1
MATERIALS AND METHODS	3
Fieldwork and preservation of specimens	3
Isolation and deposition of cultures from field-collected specimens	3
Additional specimens and cultures	3
Morphological characterisation	3
Growth trials	9
Statistical analysis	9
DNA extraction, PCR, and sequencing	9
Phylogenetic analyses	9
RESULTS	10
Phylogenetic analyses	10
Phylogenetic analyses: clade I <i>Allantonectria</i> and <i>Pleonectria</i>	10
Phylogenetic analyses: clade II <i>Nectria</i>	14
Morphological characterisation of <i>Allantonectria</i> , <i>Nectria</i> , and <i>Pleonectria</i>	14
<i>Allantonectria</i>	14
<i>Nectria</i> excluding the <i>N. balansae</i> group	15
<i>Nectria balansae</i> group	16
<i>Pleonectria</i>	17
DISCUSSION	18
Generic concepts	18
Species concepts	19
Evaluation of morphological characters	19
Stroma	19
Ascomata and ascomatal wall structure	19
Asci and ascospores	20
Anamorphs on natural substrata	20
Anamorphs in culture	20
Evaluation of teleomorphs in the natural environment	21
Evaluation of anamorphs in the natural environment	21
Evaluation of anamorphs in culture	26
Host specificity and substrata	26
Geographical distribution	26
Economic and ecological importance	27
Contradictions between phenotypic and genotypic characters, and the way forward	27
GENERA AND SPECIES DESCRIPTIONS	28
<i>Allantonectria</i>	28
<i>Allantonectria miltina</i>	28
<i>Nectria</i>	32
<i>Nectria antarctica</i>	33
<i>Nectria argentinensis</i>	36
<i>Nectria asiatica</i>	39
<i>Nectria aurantiaca</i>	42
<i>Nectria australiensis</i>	43
<i>Nectria balansae</i>	47
<i>Nectria berberidicola</i>	48
<i>Nectria canadensis</i>	50
<i>Nectria cingulata</i>	54
<i>Nectria cinnabarina</i>	55
<i>Nectria dematiosa</i>	58
<i>Nectria eustromatica</i>	61
<i>Nectria himalayensis</i>	61
<i>Nectria hoheriae</i>	64
<i>Nectria lateritia</i>	66
<i>Nectria magnispora</i>	69
<i>Nectria mariae</i>	69
<i>Nectria neorehmiana</i>	75
<i>Nectria nigrescens</i>	75
<i>Nectria noackiana</i>	79

<i>Nectria novaezelandiae</i>	83
<i>Nectria paraguayensis</i>	83
<i>Nectria polythalama</i>	84
<i>Nectria pseudadelphica</i>	88
<i>Nectria pseudocinnabarina</i>	91
<i>Nectria pseudotrichia</i>	93
<i>Nectria pyriformis</i>	101
<i>Nectria sordida</i>	101
<i>Nectria tucumanensis</i>	105
<i>Pleonectria</i>	105
<i>Pleonectria aquifolii</i>	106
<i>Pleonectria aurigera</i>	110
<i>Pleonectria austroamericana</i>	111
<i>Pleonectria balsamea</i>	116
<i>Pleonectria berlinensis</i>	120
<i>Pleonectria boothii</i>	124
<i>Pleonectria chlorinella</i>	124
<i>Pleonectria clavatispora</i>	128
<i>Pleonectria coryli</i>	128
<i>Pleonectria cucurbitula</i>	132
<i>Pleonectria ilicicola</i>	136
<i>Pleonectria lamyi</i>	140
<i>Pleonectria loniceræ</i>	142
<i>Pleonectria missouriensis</i>	142
<i>Pleonectria okinawensis</i>	146
<i>Pleonectria pinicola</i>	151
<i>Pleonectria pseudomissouriensis</i>	153
<i>Pleonectria pyrrochlora</i>	153
<i>Pleonectria quercicola</i>	157
<i>Pleonectria rosellinii</i>	157
<i>Pleonectria rubicarpa</i>	162
<i>Pleonectria sinopica</i>	165
<i>Pleonectria sphaerospora</i>	169
<i>Pleonectria strobi</i>	169
<i>Pleonectria virens</i>	175
<i>Pleonectria zanthoxyli</i>	177
Excluded and Doubtful Species	181
<i>Cosmospora proteae</i>	181
<i>Gyrostroma sinuosum</i>	181
<i>Nectria jodinae</i>	182
<i>Nectria tropicalis</i>	182
<i>Nectricladiella viticola</i>	183
<i>Neocosmospora guarapiensis</i>	185
<i>Neocosmospora rehmiana</i>	186
KEY TO GENERA	186
KEY TO SPECIES	186
NECTRIA based on teleomorph in the natural environment	186
NECTRIA based on anamorph in the natural environment	188
NECTRIA based on anamorph in culture	189
PLEONECTRIA based on teleomorph in the natural environment	189
PLEONECTRIA based on anamorph in the natural environment	191
PLEONECTRIA based on anamorph in culture	192
SYNOPTIC KEYS	193
NECTRIA (<i>Tubercularia</i> anamorph)	193
PLEONECTRIA	199
ACKNOWLEDGEMENTS	204
APPENDIX 1. Herbarium and isolate numbers used in illustrations.	205
REFERENCES	208