

CONTENTS

Frontispiece	III
Preface	IX
Contents	XI
Abstract	1
Acknowledgements	1
1 INTRODUCTION	3
1.1 Review of previous work in New Zealand	3
1.1.1 Period I	3
1.1.2 Period II	4
1.1.3 Period III: Twentieth century	5
2 GENERAL SURVEY OF THE TAXONOMIC LITERATURE ON CHAETOPHORALES	10
2.1 Systematics and distribution	10
2.1.1 Europe	10
2.1.2 North and Central America	12
2.1.3 South America	14
2.1.4 Africa (including the islands of the Indian Ocean)	14
2.1.5 Asia	17
2.1.6 Australia	18
2.1.7 Oceania	19
2.1.8 Arctic and Sub-Arctic	20
2.1.9 Antarctic and Sub-Antarctic	20
2.2 Monographic and revision work	21
3 MATERIAL AND METHOD	25
3.1 Field collections	25
3.2 Laboratory procedure	25
3.2.1 Microscopic examination, measurements and camera lucida drawings	25
3.2.2 Preparation of permanent slides and preservation	25
3.2.3 Photomicrography	26
3.3 Culture	26
3.4 Scanning electron microscopy	27
3.4.1 Preparation of specimens	27
3.4.1.1 Fixation	29
3.4.1.2 Dehydration	29
3.4.1.3 Improving conductivity: coating of the specimen	29
3.4.2 Operation mode	29
3.4.2.1 Selection of accelerating voltage	29
3.4.2.2 Specimen current	30
3.4.2.3 Scanning speed and photography	30
4 SYSTEMATIC PART	31
4.1 Classification	31
Artificial key to the New Zealand families of Chaetophorales	32
4.2 Taxonomy and the descriptions of the species occurring in New Zealand	32

5	GENERAL DISCUSSION AND CONCLUSION.....	103
6	LITERATURE CITED	109
APPENDIX I LATIN DIAGNOSES OF THE NEW TAXA DESCRIBED ..		133
APPENDIX II LIST OF CHAETOPHORALEAN TAXA PREVIOUSLY RECORDED FROM NEW ZEALAND BUT NOT ENCOUNTERED DURING THE PRESENT INVESTIGATION.....		135
Epilogue.....		136
INDEX TO PLANT NAMES		137
MAPS.....		147
ILLUSTRATIONS		163