

# CONTENTS

ABBREVIATIONS .....	V
LIST OF TABLES.....	VIII
LIST OF FIGURES.....	IX
SUMMARY .....	XII
ZUSAMMENFASSUNG.....	XIV
1 INTRODUCTION.....	1
1.1 Parasitic Plants .....	1
1.1.1 Evolution and Classification of Parasitic Plants .....	1
1.1.2 Agronomic Impact .....	4
1.2 The Haustorium.....	5
1.2.1 Stage I: Host Recognition and Protohaustorium Formation.....	5
1.2.2 Stage II: Development of Mature Haustoria.....	8
1.2.3 Stage III: Haustorium Regulation and Functions during Late Stages of Parasitism.....	10
1.3 Mobile Signals in Haustorium Formation and the Development of Other Plant Organs .....	13
1.3.1 Lateral Root Formation.....	13

1.3.2	Autoregulation of Nodulation .....	15
1.3.3	Root-Knot, Cyst, and Gall Formation in Response to Pathogen Infection .....	17
1.4	Aims of the Study .....	19
2	RESULTS .....	23
2.1	PjCLE3-mediated autoregulation of haustorium formation in the parasitic plant <i>Phtheirospermum japonicum</i> .....	23
2.2	The <i>Phtheirospermum japonicum</i> isopentenyltransferase PjIPT1a regulates host cytokinin responses in Arabidopsis .....	54
3	DISCUSSION .....	83
3.1	PjSBT1.2.3-Released PjCLE3 Acts as Mobile Signal during Early Stages of Parasitism .....	83
3.2	CLE Mimicry as a Potential Strategy in Late Stages of Parasitism .....	92
3.3	Parasite Cytokinin-Induced Host-Hypertrophy Facilitates Nutrient Acquisition in Late Stages of Parasitism .....	95
3.4	Research Perspectives .....	99
3.5	Advancement of the Research Field .....	100
4	SUPPLEMENTARY INFORMATION .....	103
5	LITERATURE .....	105
6	ACKNOWLEDGEMENTS .....	137

AFFIDAVIT .....139

CURRICULUM VITAE .....140