
Index

Abstract	1
Resumen	5
Resum	9
Resumo	13
Introduction	
1. ' <i>Candidatus Liberibacter</i> ' genus	17
1.1. Taxonomic classification and species	18
1.2. Morphological characteristics	22
2. ' <i>Ca. Liberibacter solanacearum</i> '	23
2.1. Associated diseases	24
2.1.1. Zebra chip	24
2.1.2. Psyllid yellows	29
2.1.3 Yellow declines	31
2.2. Molecular characterization	33
2.2.1. Genome analysis	33
2.2.2. Haplotypes	34
2.3. Transmission	36
2.3.1. Propagative material	36
2.3.2. Psyllid vector species	38
2.3.2.1. <i>Bactericera cockerelli</i>	40
2.3.2.2. <i>Trioza apicalis</i>	45
2.3.2.3. <i>Bactericera trigonica</i>	48
2.4. ' <i>Ca. L. solanacearum</i> ' diagnosis and detection	50

2.5. Control strategies	56
Objectives	61
Chapter 1	
Association of ‘ <i>Candidatus Liberibacter solanacearum</i> ’ with a vegetative disorder of celery in Spain and development of a real-time PCR method for its detection	65
Chapter 2	
Transmission of ‘ <i>Candidatus Liberibacter solanacearum</i> ’ in carrot seeds	95
Chapter 3	
The search for potential vectors of ‘ <i>Candidatus Liberibacter solanacearum</i> ’: population dynamics in host crops	123
Chapter 4	
Transmission of ‘ <i>Candidatus Liberibacter solanacearum</i> ’ by <i>Bactericera trigonica</i> Hodkinson and threat to other crops	149
Discussion	173
Conclusions	187
Literature cited	191
List of publications	231