## Index

Introduction	1
Hybrids in plant breeding	1
Haploids and doubled haploids	2
Methods for doubled haploid production	3
Methods for induction of microspore embryogenesis	6
Anther culture	7
Microspore culture	7
Factors influencing induction of microspore embryogenesis	8
Microspore-derived structures	9
References	11
Objectives	15
Block 1	19
<b>Chapter 1:</b> Comparison of six different methods to calculate cell densities	21
<b>Chapter 2:</b> Role of growth regulators and cell density in <i>Solanum melongena</i> L. isolated microspore culture	57
<b>Chapter 3:</b> Isolated microspore culture in <i>Brassica napus</i>	83

Block 2	105
<b>Chapter 4:</b> The highly and barely embryogenic populations of <i>B. napus</i> microspore cultures undergo different levels of ER stress, autophagy and programmed cell death	107
<b>Chapter 5:</b> Cell wall composition and structure defines the developmental fate of embryogenic microspores in <i>Brassica napus</i>	147
<b>Chapter 6:</b> TSA influences cell wall composition and structure in embryogenic microspores of <i>Brassica napus</i>	191
General discussion	233
Refining the methods for microspore embryogenesis	236
A step further in the knowledge about microspore Embryogenesis	237
Conclusions	245