

## Contents

<b>Introduction</b>	<b>1</b>	
<b>List of abbreviations</b>	<b>2</b>	
<b>Chapter 1</b>	Genome-scale metabolic modeling of microorganisms and the cocoa bean fermentation process	<b>3</b>
<b>Chapter 2</b>	Aims and objectives	<b>33</b>
<b>Chapter 3</b>	Genome-scale metabolic reconstruction of <i>Acetobacter</i> <i>pasteurianus</i> 386B, a candidate functional starter culture for cocoa bean fermentation	<b>35</b>
<b>Chapter 4</b>	Application of comparative genomics of <i>Acetobacter</i> species facilitates genome-scale metabolic reconstruction of <i>Acetobacter ghanensis</i> LMG 23848 <sup>T</sup> and <i>Acetobacter</i> <i>senegalensis</i> 108B	<b>57</b>
<b>Chapter 5</b>	Genome-scale metabolic modeling of <i>Acetobacter</i> <i>pasteurianus</i> 386B reveals its metabolic adaptation to cocoa fermentation conditions	<b>73</b>
<b>Chapter 6</b>	Dynamic modeling of <i>Acetobacter pasteurianus</i> 386B and <i>Acetobacter ghanensis</i> LMG 23848 <sup>T</sup> , two candidate functional starter cultures for cocoa bean fermentation processes	<b>91</b>
<b>Chapter 7</b>	Genome-scale metabolic modeling of the candidate functional starter cultures <i>Lactobacillus fermentum</i> 222 and <i>Lactobacillus plantarum</i> 80 for cocoa bean fermentation processes	<b>109</b>
<b>Chapter 8</b>	General conclusions	<b>129</b>
<b>References</b>		<b>137</b>
<b>Summary</b>		<b>167</b>
<b>Samenvatting</b>		<b>169</b>
<b>Résumé</b>		<b>171</b>
<b>Curriculum vitae</b>		<b>173</b>
<b>Annexes</b>		<b>175</b>