

<b>LISTADO DE FIGURAS.</b> .....	<b>25</b>
<b>LISTADO DE TABLAS.</b> .....	<b>33</b>
<b>I. INTRODUCCIÓN</b> .....	<b>37</b>
<b>I.1. ACEITES VEGETALES EN INGENIERÍA.</b> .....	<b>39</b>
<b>I.1.1. Estructura.</b> .....	<b>42</b>
<b>I.1.2. Propiedades.</b> .....	<b>45</b>
<b>I.2. ACEITE DE SEMILLA DE ALGODÓN (CSO).</b> .....	<b>53</b>
<b>I.2.1. Producción mundial de CSO.</b> .....	<b>54</b>
<b>I.2.2. Composición de CSO.</b> .....	<b>56</b>
<b>I.2.3. Composición y propiedades de CSO.</b> .....	<b>56</b>
<b>I.3. POLÍMEROS DE ALTO RENDIMIENTO MEDIOAMBIENTAL.</b> .....	<b>57</b>
<b>I.3.1. Polímeros termoplásticos.</b> .....	<b>58</b>
<b>I.3.1. Polímeros termoestables.</b> .....	<b>64</b>
<b>I.4. TERMOESTABLES DERIVADOS DE ACEITES VEGETALES.</b> .....	<b>75</b>
<b>I.4.1. Resinas derivadas de aceites vegetales epoxidados.</b> .....	<b>75</b>
<b>I.4.2. Resinas derivadas de aceites vegetales epoxidados-acrilados.</b> ...	<b>76</b>
<b>I.4.3. Resinas derivadas de aceites vegetales maleinizados.</b> .....	<b>77</b>
<b>I.5. PLASTIFICANTES DERIVADOS DE ACEITES VEGETALES.</b> .....	<b>78</b>
<b>I.5.1. Aceites vegetales epoxidados.</b> .....	<b>79</b>
<b>I.5.2. Aceites vegetales maleinizados.</b> .....	<b>79</b>
<b>I.5.3. Aceites vegetales epoxidados-acrilados.</b> .....	<b>80</b>
<b>I.6. REFERENCIAS.</b> .....	<b>81</b>
<b>II. INVESTIGACIÓN PREVIA</b> .....	<b>99</b>
<b>II.1. MARCO DE LA INVESTIGACIÓN.</b> .....	<b>101</b>
<b>II.2. Development of slate fiber reinforced high density polyethylene composites for injection molding.</b> .....	<b>113</b>
<b>Abstract.</b> .....	<b>115</b>
<b>Keywords.</b> .....	<b>115</b>
<b>II.2.1. Introduction.</b> .....	<b>116</b>
<b>II.2.2. Experimental.</b> .....	<b>117</b>
<b>II.2.3. Results and Discussion.</b> .....	<b>121</b>

II.2.4. Conclusions.....	130
Acknowledgements.....	130
References.....	131
<b>II.3. Wet-laid technique with <i>Cyperus esculentus</i>: Development, manufacturing and characterization of a composite.....</b>	<b>137</b>
Abstract.....	139
Keywords.....	139
II.3.1. Introduction.....	140
II.3.2. Experimental.....	143
II.3.3. Results and discussion.....	148
II.3.4. Conclusions.....	156
References.....	158
<b>II.4. Development and characterization of a new natural fiber reinforced thermoplastic (NFRP) with <i>Cortaderia selloana</i> (Pampa grass) short fibers.....</b>	<b>163</b>
Abstract.....	165
Keywords.....	165
II.4.1. Introduction.....	166
II.4.2. Experimental.....	168
II.4.3. Results and discussion.....	172
II.4.4. Conclusions.....	185
Acknowledgements.....	186
References.....	187
<b>III. OBJETIVOS Y PLANIFICACIÓN.....</b>	<b>191</b>
<b>III.1. HIPÓTESIS Y OBJETIVOS.....</b>	<b>193</b>
II.1.1. Objetivo general.....	195
II.1.2. Objetivos particulares.....	195
<b>III.2. METODOLOGÍA Y PLANIFICACIÓN.....</b>	<b>197</b>
<b>IV. RESULTADOS Y DISCUSIÓN.....</b>	<b>213</b>
<b>RESUMEN.....</b>	<b>215</b>
<b>IV.1. Development of Environmentally Friendly Composite Matrices from Epoxidized Cottonseed Oil.....</b>	<b>219</b>

Abstract .....	221
Keywords.....	221
<b>IV.1.1. Introduction.....</b>	<b>222</b>
<b>IV.1.2. Experimental.....</b>	<b>225</b>
<b>IV.1.3. Results and discussion.....</b>	<b>229</b>
<b>IV.1.4. Conclusions.....</b>	<b>241</b>
<b>Acknowledgements.....</b>	<b>242</b>
<b>References.....</b>	<b>243</b>
<b>IV.2. A new biobased plasticizer for poly (vinyl chloride), PVC base on epoxidized cottonseed oil (ECSO).....</b>	<b>249</b>
Abstract .....	251
Keywords.....	251
<b>IV.2.1. Introduction.....</b>	<b>252</b>
<b>IV.2.2. Experimental.....</b>	<b>254</b>
<b>IV.2.3. Results and discussion.....</b>	<b>257</b>
<b>IV.2.4. Conclusions.....</b>	<b>272</b>
<b>Acknowledgements.....</b>	<b>273</b>
<b>References.....</b>	<b>274</b>
<b>IV.3. Plasticization effect of epoxidized cottonseed oil (ECSO) on poly(lactic acid).....</b>	<b>279</b>
Abstract .....	281
Keywords.....	281
<b>IV.3.1. Introduction.....</b>	<b>282</b>
<b>IV.3.2. Experimental.....</b>	<b>284</b>
<b>IV.3.3. Results and discussion.....</b>	<b>288</b>
<b>IV.3.4. Conclusions.....</b>	<b>300</b>
<b>Acknowledgements.....</b>	<b>301</b>
<b>References.....</b>	<b>302</b>
<b>IV.4. PLA films with improved flexibility properties by using maleinized cottonseed oil.....</b>	<b>309</b>
Abstract .....	311
Keywords.....	311
<b>IV.4.1. Introduction.....</b>	<b>312</b>
<b>IV.4.2. Experimental.....</b>	<b>315</b>
<b>IV.4.3. Results and discussion.....</b>	<b>320</b>
<b>IV.4.4. Conclusions.....</b>	<b>331</b>

<b>Acknowledgements.</b> ....	<b>332</b>
<b>References.</b> .....	<b>333</b>
<b>IV.5. Manufacturing and compatibilization of PLA/PBAT binary blends by cottonseed oil-based derivatives.</b> .....	<b>341</b>
<b>Abstract</b> .....	<b>343</b>
<b>Keywords</b> .....	<b>343</b>
<b>IV.5.1. Introduction</b> .....	<b>344</b>
<b>IV.5.2. Experimental</b> .....	<b>347</b>
<b>IV.5.3. Results and discussion</b> .....	<b>353</b>
<b>IV.5.4. Conclusions.</b> .....	<b>367</b>
<b>Acknowledgements.</b> .....	<b>368</b>
<b>References.</b> .....	<b>369</b>
<b>IV.6. Processing and characterization of environmentally friendly composites from poly(lactic acid) and cottonseed waste materials.</b> .....	<b>377</b>
<b>Abstract</b> .....	<b>378</b>
<b>Keywords</b> .....	<b>378</b>
<b>IV.6.1. Introduction.</b> .....	<b>379</b>
<b>IV.6.2. Experimental</b> .....	<b>381</b>
<b>IV.6.3. Results and discussion</b> .....	<b>386</b>
<b>IV.6.4. Conclusions.</b> .....	<b>399</b>
<b>Acknowledgements.</b> .....	<b>400</b>
<b>References.</b> .....	<b>401</b>
<b>V. CONCLUSIONES</b> .....	<b>407</b>
<b>V.1. CONCLUSIONES PARCIALES</b> .....	<b>409</b>
<b>V.1.1. Respecto a termoestables derivados del aceite de semilla de algodón epoxidado.</b> .....	<b>409</b>
<b>V.1.2. Respecto a los plastificantes derivados de aceite de semilla de algodón con aplicaciones en termoplásticos.</b> .....	<b>410</b>
<b>V.1.3. Respecto a los efectos de aceites vegetales derivados de semilla de algodón en compatibilización y optimización de formulaciones derivadas de ácido poli(láctico).</b> .....	<b>413</b>
<b>V.2. CONCLUSIONES FINALES</b> .....	<b>416</b>