



# Inhaltsverzeichnis

<b>1. INTRODUCTION</b>	<b>1</b>
<b>2. NON-CONVENTIONAL BIODIESEL SAMPLE PREPARATION</b>	<b>8</b>
2.1. INTRODUCTION	8
2.2. MATERIALS AND METHODS	9
2.2.1. MATERIALS	9
2.2.2. PRETREATMENT AND TRANSESTERIFICATION OF RUBBER SEED OIL	9
2.2.3. ANALYTICAL METHODS	10
2.3. RESULTS	10
2.3.1. RUBBER SEED OIL FAME PREPARATION	10
2.3.2. PURIFICATION OF RUBBER SEED OIL FAME	12
2.3.3. PREPARATION OF SALMON OIL FAME	13
2.3.4. ANALYSIS OF SALMON OIL FAME	14
2.4. REFERENCES	15
<b>3. CHARACTERIZATION AND EVALUATION OF THE BIODIESEL SAMPLES</b>	<b>16</b>
3.1. SCOPE	16
3.2. PREFACE	16
3.3. MATERIALS AND METHODS	16
3.4. RESULTS	17
3.4.1. RUBBER SEED OIL METHYL ESTERS (RSOME)	17
3.4.2. SQUID OIL METHYL ESTERS (SOME)	18
3.4.3. FISH OIL METHYL ESTERS (FOME)	19
3.4.4. DISTILLED FISH OIL METHYL ESTERS (DFOME)	20
3.4.5. DISCUSSION	21
3.5. BLENDING BEHAVIOR	22
3.6. STABILITY IMPROVEMENT	22
3.7. REFERENCES	24
<b>4. PARTIAL HYDROGENATION OF BIODIESEL SAMPLES IN LAB-SCALE</b>	<b>25</b>
4.1. SCOPE	25
4.2. MATERIALS AND METHODS	25
4.2.1. FEEDSTOCK	25
4.2.2. PARTIAL HYDROGENATION	25
4.2.3. PRODUCT ANALYSIS	26
4.3. RESULTS AND DISCUSSION	26
4.4. CONCLUSION	30



<b>4.5. REFERENCES</b>	<b>31</b>
<b>5. EMISSIONS OF RUBBER TREE OIL METHYL ESTER AND FISH OIL METHYL ESTER</b>	<b>32</b>
<b>5.1. THE ENVIRONMENTAL RELEVANCE OF DIESEL ENGINE EMISSIONS</b>	<b>32</b>
5.1.1. REGULATED EXHAUST GAS COMPONENTS	32
5.1.2. NON-REGULATED EXHAUST GAS COMPONENTS	36
<b>5.2. MATERIALS AND METHODS</b>	<b>45</b>
5.2.1. ENGINE AND ENGINE TESTING CONDITIONS	45
5.2.2. FUELS	46
5.2.3. ANALYTICAL METHODS FOR REGULATED EXHAUST GAS EMISSIONS	48
5.2.4. ANALYSIS METHODS FOR NON-REGULATED EXHAUST GAS EMISSIONS	50
<b>5.3. RESULTS</b>	<b>54</b>
5.3.1. RESULTS FOR THE REGULATED EXHAUST GAS COMPONENTS	54
5.3.2. RESULTS OF THE NON-REGULATED EXHAUST GAS COMPONENTS	57
<b>5.4. CONCLUSION</b>	<b>62</b>