

LIST OF TABLES

S. No.	Details	Page No.
Chapter 1		
Table 1.1	Summary of homogeneous, heterogeneous, and enzyme catalysts used in transesterification	19
Table 1.2	Additional methods adopted in transesterification reaction for methyl ester production	22
Table 1.3	Comparative study of various homogeneous and heterogeneous catalysts employed in FAME production from non edible feedstocks	25
Chapter 2		
Table 2.1	Physicochemical properties of feedstocks	34
Table 2.2	Physicochemical properties of methyl esters derived from non-edible feedstocks	53
Chapter 3		
Table 3.1	Fatty acid composition of methyl esters inferred from GC-MS	78
Table 3.2	An illustration of physicochemical properties of FAME produced from <i>Madhuca longifolia</i> oil feedstock	82
Chapter 4		
Table 4.1	Fatty acid composition of fatty acid methyl esters derived from <i>Milletia pinnatta</i> oil obtained from GC-MS	105
Table 4.2	Physicochemical properties of fatty acid methyl esters derived from <i>Milletia pinnata</i> oil feedstock	108
Chapter 5		
Table 5.1	Composition profile of methyl ester derived from <i>Schleichera oleosa</i> oil inferred from GC- MS	131
Table 5.2	Comparative study of physicochemical properties of <i>Schleichera oleosa</i> oil and <i>Schleichera oleosa</i> oil methyl ester	134
Chapter 6		
Table 6.1	An illustration of level of variables chosen in Central	139

Composite Design (CCD) for FAME conversion

Table 6.2	An illustration of experimental runs formulated by Central Composite Design (CCD) for methyl ester production with six center points and α value of 1.68179	139
Table 6.3	BET surface area analysis of Sr-Ti mixed metal oxide catalysts	151
Table 6.4	Estimated regression coefficient of transesterification for methyl ester production using Sr-Ti mixed metal oxide as solid catalyst	154
Table 6.5	Analysis of variance for methyl ester production using Sr-Ti mixed metals oxide as solid base catalyst	155
Table 6.6	Confirmatory experiments for methyl ester production employing Sr-Ti mixed metals oxide as heterogeneous solid catalyst	159
Table 6.7	Physicochemical and fuel properties of methyl esters produced from mahua oil with ASTM standards	168

Chapter 7

Table 7.1	Comparison of optimum values of process parameters studied in all four objectives	178
Table 7.2	An illustration over compatibility check of all prepared catalysts with individual feedstocks	179
Table 7.3	Comparison of determined values of kinetic and thermodynamic parameters along with E-Factor and TOF	180