

Supplementary material to

## Triethanolamine as an efficient cosolvent for biodiesel production by CaO-catalyzed sunflower oil ethanolsis: An optimization study

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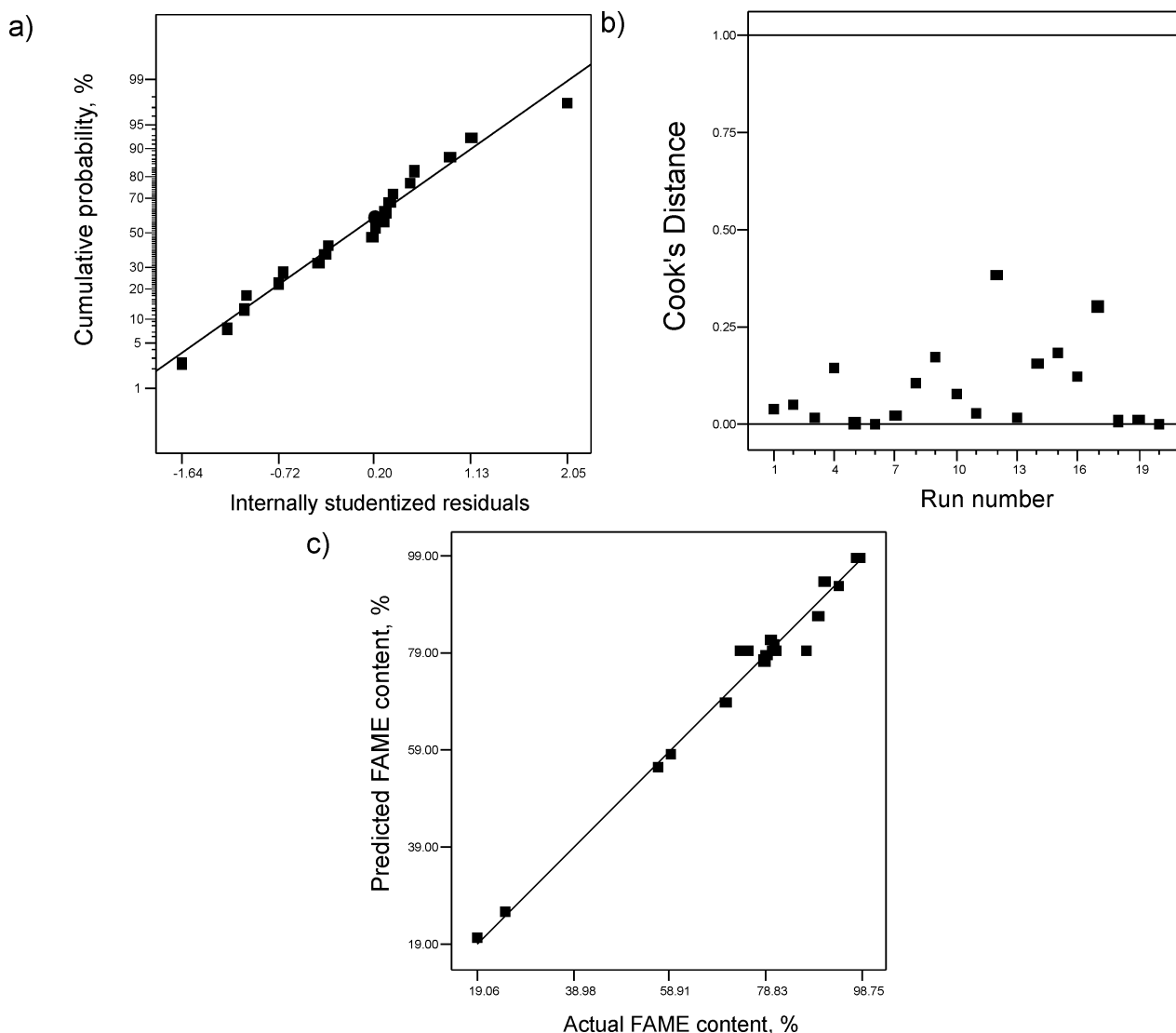


Figure D1. Normal probability plot of residuals (a), Cook's distances (b) and predicted and actual values of FAME content (c)

Table D1. Results of sequential model sum of squares test

Source	Sum of squares	df	Mean square	F-value	p-value	Remark
Mean vs. Total	111766.2	1	111766.2			
Linear vs. Mean	5573.0	3	1857.7	10.4	0.0005	
2FI vs. Linear	697.7	3	232.6	1.4	0.2889	
Quadratic vs. 2FI	1731.9	3	577.3	13.2	0.0008	Suggested
Cubic vs. Quadratic	314.0	4	78.5	3.8	0.0707	Aliased
Residual	123.3	6	20.5			
Total	120206.1	20	6010.3			

Table D2. Results of lack of fit test

Source	Sum of squares	df	Mean square	F-value	p-value	Remark
Linear	2743.8	11	249.4	10.14	0.0096	
2FI	2046.2	8	255.8	10.39	0.0098	
Quadratic	314.2	5	62.8	2.55	0.1633	Suggested
Cubic	0.2	1	0.2	0.01	0.9266	Aliased
Pure Error	123.1	5	24.6			

Table D3. Results of model summary statistics test

Source	Stand. dev.	$R^2$	$R_{adj}^2$	$R_{pred}^2$	PRESS	Remark
Linear	13.39	0.660	0.597	0.398	5078.2	
2FI	12.92	0.743	0.624	0.311	5817.2	
Quadratic	6.61	0.948	0.902	0.643	3009.3	Suggested
Cubic	4.53	0.985	0.954	0.973	228.0	Aliased