

SUPPLEMENTARY MATERIAL

Insights into the enhanced lipid production characteristics of a fresh water microalga under high salinity conditions

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Supplementary Fig 1: *Scenedesmus* sp. IITRIND2 grown in different salinities of ASW



Supplementary Table 1: Details of sea salt concentrations for different % of Artificial sea water (ASW).

Sea salts concentration (mg/L)	ASW				
	0 %	30 %	50 %	80 %	100 %
MgCl ₂ ·6H ₂ O	0	1.39	2.33	3.73	4.66
CaCl ₂ ·2H ₂ O	0	0.32	0.51	0.82	1.02
NaCl	0	8.59	14.33	22.9	28.65
KCl	0	0.2	0.34	0.54	0.67
Total	0	10.5	17.5	27.9	35

Supplementary Table 2: Empirical formulas for physical properties

S. No	Physical property	Empirical Formula
1	Saponification value	$\sum 560 (\% \text{ FC}) / M$
2	Iodine value	$\sum 254 \text{ DB} * \% \text{ FC} / M$
3	Cetane number	$46.3 + 5458 / \text{SV} - (0.255 * \text{IV})$
4	Degree of unsaturation (%)	$\text{MUFA} + (2 * \text{PUFA})$
5	Long chain saturation factor	$(0.1 * \text{C16}) + (0.5 * \text{C18})$
6	Cold filter plugging properties	$(3.417 * \text{LCSF}) - 16.477$
7	High heating value	$49.43 - 0.041 (\text{SV}) - 0.015 (\text{IV})$
8	ln(Kinematic viscosity)	$-12.503 + 2.496 * \ln (\sum M) - 0.178 * \sum \text{DB}$
9	Density	$0.8463 + 4.9 / \sum M + 0.0118 * \sum \text{DB}$
10	Oxidative stability	$117.9295 / (\text{wt } \% \text{ C18:2} + \text{wt } \% \text{ C 18:3}) + 2.5905$

Where M = molecular mass of each fatty acid component

DB = number of double bonds

FC = % of each fatty acid component

MUFA = weight % of monounsaturated fatty acids

PUFA = weight % of poly unsaturated fatty acids