**Supplementary Material**

# Biocrude from *Nannochloropsis gaditana* by hydrothermal liquefaction: An experimental design approach

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**Table S1.** ANOVA for biocrude response.

| Source | Sum of squares | Gl | Middle Square | Ratio-F | *p-value* |
|---|---|---|---|---|---|
| $X_T$ | 1404.22 | 1 | 1404.22 | 1387.06 | 0.0000 |
| $X_t$ | 27.06 | 1 | 27.06 | 26.73 | 0.0013 |
| $X_{CS}$ | 0.28 | 1 | 0.28 | 0.28 | 0.6117 |
| $X_T X_T$ | 22.14 | 1 | 22.14 | 21.87 | 0.0023 |
| $X_T X_t$ | 15.18 | 1 | 15.18 | 14.99 | 0.0061 |
| $X_T X_{CS}$ | 5.746 | 1 | 5.74 | 5.68 | 0.0487 |
| $X_t X_t$ | 0.10 | 1 | 0.10 | 0.11 | 0.7548 |
| $X_t X_{CS}$ | 17.52 | 1 | 17.52 | 17.31 | 0.0042 |
| $X_{CS} X_{CS}$ | 4.46 | 1 | 4.46 | 4.41 | 0.0740 |
| Total error | 7.08 | 7 | 1.01 | | |
| Error | 1503.78 | 16 | | | |

**Table S2.** ANOVA for N content response.

| Source | Sum of squares | Gl | Middle Square | Ratio-F | *p-value* |
|---|---|---|---|---|---|
| $X_T$ | 0.23 | 1 | 0.23 | 0.64 | 0.4511 |
| $X_t$ | 0.4 | 1 | 0.4 | 1.09 | 0.3316 |
| $X_{CS}$ | 4.77 | 1 | 4.77 | 12.99 | 0.0087 |
| $X_T X_T$ | 0.04 | 1 | 0.04 | 0.12 | 0.7385 |
| $X_T X_t$ | 0.47 | 1 | 0.47 | 1.28 | 0.2952 |
| $X_T X_{CS}$ | 0.35 | 1 | 0.35 | 0.96 | 0.3599 |
| $X_t X_t$ | 1.69 | 1 | 1.69 | 4.59 | 0.0694 |
| $X_t X_{CS}$ | 0.95 | 1 | 0.95 | 2.59 | 0.1516 |
| $X_{CS} X_{CS}$ | 1.34 | 1 | 1.34 | 3.66 | 0.0973 |
| Total error | 2.57 | 7 | 0.37 | | |
| Total (corr.) | 17.6882 | 16 | | | |

**Table S3.** ANOVA for O content response.

| Source | Sum of squares | Gl | Middle Square | Ratio-F | *p-value* |
|---|---|---|---|---|---|
| $X_T$ | 1.89 | 1 | 1.89 | 0.20 | 0.6648 |
| $X_t$ | 33.34 | 1 | 33.34 | 3.60 | 0.0995 |
| $X_{CS}$ | 112.69 | 1 | 112.69 | 12.18 | 0.0101 |
| $X_T X_T$ | 32.91 | 1 | 32.91 | 3.56 | 0.1013 |
| $X_T X_t$ | 1.08 | 1 | 1.08 | 0.12 | 0.7418 |
| $X_T X_{CS}$ | 0.78 | 1 | 0.78 | 0.09 | 0.7790 |
| $X_t X_t$ | 34.15 | 1 | 34.15 | 3.69 | 0.0962 |
| $X_t X_{CS}$ | 39.38 | 1 | 39.38 | 4.26 | 0.0780 |
| $X_{CS} X_{CS}$ | 6.07 | 1 | 6.07 | 0.66 | 0.4447 |
| Total error | 64.78 | 7 | 9.25 | | |
| Total (corr.) | 313.78 | 16 | | | |

**Table S4.** Elemental composition of biocrude at the optimum conditions (320 °C, 10 min and 10 wt% of biomass concentration).

| H (wt%) | C (wt%) | N (wt%) | S (wt%) | O (wt%) |
|---|---|---|---|---|
| 9.18±0.01 | 73.71±0.08 | 6.12±0.02 | 0.32±0.02 | 10.77±0.16 |