*Microbial Cell Factories*

Combined artificial high-silicate medium and LED illumination promote carotenoid accumulation in the marine diatom *Phaeodactylum tricornutum*

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**Figure S1**

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**Fig. S1** Growth of*P. tricornutum* on silicate free PT-6 medium under red LED and combined red and blue (50:50) LED illumination. The light intensities were 128 μE/m2/s for red light and 102 μE/m2/s for combined red and blue lights, respectively. The results presented are average values from three independent experiments. Error bars indicate SD.

**Figure S2**

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**Fig. S2** Effect of different incident photon fluxes on the chlorophyll *a* and beta-carotene content in *P. tricornutum* under combined red and blue (50:50) LED illumination. The results presented are average values from three independent experiments. Error bars indicate SD.

**Table S1** Nutrient composition of media PT-8 and PT-7

|  |  |  |
| --- | --- | --- |
| Compound | PT-8 (mg/L) | PT-7 (mg/L) |
| NaCl | 29250 | 29250 |
| MgSO4 ·7H2O | 1232 | 1232 |
| H3BO3 | 124 | 124 |
| KNO3 | 3150 | 3150 |
| Na2SiO3 | 366 | 36.6 |
| Na2HPO4 | -- | 568 |
| NaH2PO4 ·H2O | 552 | -- |
| NaFeEDTA | 10.0 | 10.0 |
| Cyanocobalamin (Vitamin B12) | 0.0135 | 0.0135 |
| Thiamine HCl (Vitamin B1) | 0.5 | 0.5 |
| Biotin | 0.001 | 0.001 |
| CuSO4 · 5H2O | 0.75 | 0.75 |
| ZnSO4 · 7H2O | 4.6 | 4.6 |
| CoCl2 · 6H2O | 0.24 | 0.24 |
| MnCl2 · 4H2O | 0.69 | 0.69 |
| Na2MoO4 · 2H2O | 0.36 | 0.36 |
| CaCl2 ·2H2O | 13.0 | 13.0 |