

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
18 November 2021 (18.11.2021)



(10) International Publication Number
WO 2021/229209 A1

(51) International Patent Classification:
C12N 15/70 (2006.01)

(21) International Application Number:
PCT/GB2021/051120

(22) International Filing Date:
10 May 2021 (10.05.2021)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2006886.2 11 May 2020 (11.05.2020) GB

(71) Applicant: **THE UNIVERSITY OF SHEFFIELD**
[GB/GB]; Firth Court, Western Bank, Sheffield S10 2TN
(GB).

(72) Inventors: **BURNS, Thomas James**; Department of Molecular Biology and Biotechnology, Firth Court, Western Bank, Sheffield S10 2TN (GB). **GILMOUR, Daniel James**; 34 Bellevue Crescent, Ayr, South Ayrshire KA7 2DR (GB).

(74) Agent: **HGF LIMITED**; Document Handling - HGF (Manchester), 1 City Walk, Leeds Yorkshire LS11 9DX (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,

(54) Title: METHOD OF CULTURING ALGAE

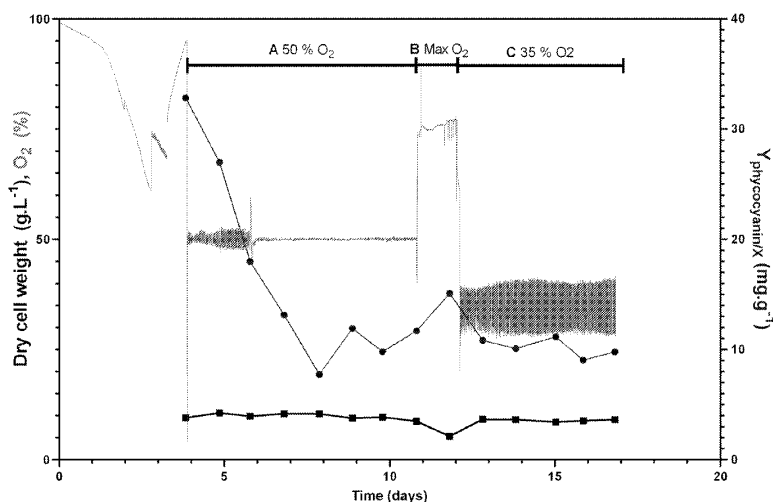


Figure 1

(57) Abstract: The present invention relates to a heterotrophic methods of culturing algae, particularly *Galdieria* species, to produce the valuable pigment phycocyanin. The methods rely on high oxygen saturation and controlled base dosing to provide improved phycocyanin production. The present invention further relates to algal biomass, compositions comprising said biomass or phycocyanin, uses thereof in various products, and a reactor for culturing the algae.

[Continued on next page]

TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

Published:

— *with international search report (Art. 21(3))*