**Table 3** Average laboratory lipid content, biomass and lipid productivity for 55 microalgal species and genera reported in the literature

| Species | Taxa[a] | Media[b] | References[c] | Average from literature | | | | | | Literature | Calculated |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Nutrient replete % dw | N deficient % dw | Si deficient % dw | Nutrient replete $T_d$ (h) | Nutrient replete g $m^{-2}$ $day^{-1}$ | Nutrient replete g $L^{-1}$ $day^{-1}$ | Nutrient replete mg $L^{-1}$ $day^{-1}$ | Nutrient replete mg $L^{-1}$ $day^{-1}$ |
| *Amphiprora hyalina* | B | M | 36; 63 | 22 | 28 | 37 | 10 | | | | |
| *Amphora* | B | M | 21; 63 | 51 | | | 20 | 40 | | 160 | |
| *Anabaena cylindrica* | Cy | F | 5; 11; 17; 31; 47 | 5 | 5 | | 24 | | | | |
| *Ankistrodesmus falcatus* | C | F | 6; 59; 63 | 24 | 32 | | 8 | 32 | 0.46 | | 109 |
| *Chaetoceros calcitrans* | O | M | 61 | 40 | | | | | 0.04 | 18 | 16 |
| *Chaetoceros muelleri* | O | M | 14; 36; 45; 51; 58; 61; 63; 70 | 19 | 27 | 36 | 11 | | 0.07 | 22 | 13 |
| *Chlamydomonas applanata* | C | F | 65 | 18 | 33 | | | | | | |
| *Chlamydomonas reinhardtii* | C | F | 5; 67 | 21 | | | 6 | | | | |
| *Chlorella emersonii* | C | F | 3 | 29 | 63 | | 19 | | 0.03 | | 8 |
| *Chlorella minutissima* | C | M | 33 | 31 | 57 | | 38 | | 0.03 | | 10 |
| *Chlorella protothecoides* | C | F | 2; 33; 74 | 13 | 23 | | 40 | | | | |
| *Chlorella pyrenoidosa* | C | F | 5; 11; 38; 60; 63; 65; 67; 68 | 16 | 64 | | 7 | | | | |
| *Chlorella sorokiniana* | C | F | 8; 33; 44; 60; 61; 72 | 18 | 18 | | 8 | | 0.55 | 45 | 97 |
| *Chlorella vulgaris* | C | F | 5; 11; 17; 33; 38; 39; 40; 55; 61; 65; 67 | 25 | 42 | | 17 | 11 | 0.11 | 26 | 28 |
| *Crypthecodinium cohnii* | D | M | 3; 9; 15 | 25 | | | 9 | | | | |
| *Cyclotella cryptica* | O | M | 36; 63; 65; 70 | 18 | 34 | 38 | 13 | | | | |
| *Cylindrotheca* | B | M | 15; 63 | 27 | 27 | | 7 | | | | |
| *Dunaliella primolecta* | Pr | S | 63 | 23 | 14 | | | 9 | | | |
| *Dunaliella salina* | Pr | S | 1; 5; 6; 47; 48; 59 | 19 | 10 | | 11 | | | | |
| *Dunaliella tertiolecta* | Pr | S | 28; 35; 65; 66 | 15 | 18 | | 11 | | | | |
| *Etlia oleoabundans* | C | F | 26; 39; 63 | 36 | 42 | | | | 0.46 | 136 | 164 |
| *Euglena gracilis* | Eg | F | 5; 16; 17; 18; 19; 64 | 20 | 35 | | 14 | | | | |
| *Hymenomonas carterae* | H | M | 56; 65 | 20 | 14 | | 41 | | | | |
| *Isochrysis galbana* | H | M | 6; 15; 38; 54; 56; 58; 61; 63 | 25 | 29 | | 21 | 12 | 0.16 | 38 | 38 |
| *Monodopsis subterranea* | E | F | 11; 17; 41; 57; 61; 65 | 25 | 13 | | | | 0.19 | 30 | 48 |
| *Monoraphidium minutum* | C | F | 63 | 22 | 52 | | 8 | | | | |
| *Nannochloris* | C | M/F | 6; 15; 39; 58; 63; 65 | 28 | 30 | | 12 | 32 | 0.23 | 77 | 63 |
| *Nannochloropsis* | E | M | 25; 32; 47; 61; 63; 69 | 31 | 41 | | 29 | | 0.27 | 52 | 82 |
| *Nannochloropsis salina* | E | M | 50; 63; 65 | 27 | 46 | | | 14 | | | |
| *Navicula acceptata* | B | F | 15; 36; 62; 63 | 33 | 35 | 46 | 10 | | | | |
| *Navicula pelliculosa* | B | F | 17; 20; 23; 65 | 27 | 45 | 34 | 5 | | | | |
| *Navicula saprophila* | B | F | 36; 63 | 24 | 51 | 49 | 9 | | | | |
| *Nitzschia communis* | B | M | 22; 36 | | | | 23 | | | | |
| *Nitzschia dissipata* | B | M | 36; 63 | 28 | 46 | 47 | 9 | | | | |
| *Nitzschia frustulum* | B | M | 59 | 26 | | | | | | | |
| *Nitzschia palea* | B | M | 22; 63; 65 | 47 | 40 | | | | | 48 | |

**Table 3** (continued)

| Species | Taxa[a] | Media[b] | References[c] | Average from literature | | | | | | Literature | Calculated |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Nutrient replete % dw | N deficient % dw | Si deficient % dw | Nutrient replete $T_d$ (h) | Nutrient replete g $m^{-2}$ $day^{-1}$ | Nutrient replete g $L^{-1}$ $day^{-1}$ | Nutrient replete mg $L^{-1}$ $day^{-1}$ | Nutrient replete mg $L^{-1}$ $day^{-1}$ |
| *Oscillatoria* | Cy | F | 11; 17; 55; 63 | 7 | 13 | | 7 | | | | |
| *Ourococcus* | C | F | 46; 65 | 27 | 50 | | 72 | | | | |
| *Pavlova lutheri* | H | M | 54; 61 | 36 | | | | | 0.21 | 50 | 75 |
| *Pavlova salina* | H | M | 61 | 31 | | | | | 0.16 | 49 | 49 |
| *Phaeodactylum tricornutum* | B | M | 13; 15; 26; 38; 42; 47 | 21 | 26 | | 25 | 20 | 0.34 | 45 | 72 |
| *Porphyridium purpureum* | R | M | 5; 17; 37; 38; 54; 61 | 11 | | | 11 | | 0.23 | 35 | 24 |
| *Prymnesium parvum* | H | M | 4; 5 | 30 | | | 18 | | | | |
| *Scenedesmus dimorphus* | C | F | 5; 7; 49; 59 | 26 | | | 11 | | | | |
| *Scenedesmus obliquus* | C | F | 5; 29; 30; 55; 65; 67 | 21 | 42 | | 66 | | 0.12 | | 25 |
| *Scenedesmus quadricauda* | C | F | 61 | 18 | | | | | 0.19 | 35 | 35 |
| *Selenastrum gracile* | C | F | 65 | 21 | 28 | | | | | | |
| *Skeletonema costatum* | O | M | 24; 43; 52; 61; 65 | 16 | 25 | | 16 | | 0.08 | 17 | 13 |
| *Spirulina maxima* | Cy | S | 5; 38; 71; 73 | 7 | | | 32 | | | | |
| *Spirulina platensis* | Cy | S | 5; 27; 38; 47; 55 | 13 | 10 | | 14 | 25 | | | |
| *Synechococcus* | Cy | M | 5; 63 | 11 | | | 9 | | | 75 | |
| *Tetraselmis suecica* | P | M | 15; 42; 54; 61; 63 | 17 | 26 | | 36 | 28 | 0.59 | 32 | 99 |
| *Thalassiosira pseudonana* | O | M | 10; 24; 43; 61; 65 | 16 | 26 | | 12 | | 0.08 | 17 | 13 |
| *Thalassiosira weissflogii* | O | M | 34; 65 | 22 | 24 | | 14 | | | | |
| *Tribonema* | O | M | 11; 12; 17; 54 | 12 | 16 | | 44 | | 0.51 | | 59 |
| Average | | | | 23 | 32 | 41 | 19 | 22 | 0.23 | 50 | 52 |

Blank indicates no information available

[a] Key to taxa: *C* Chlorophyta, *Cy* Cyanobacteria, *D* Dinophyta, *E* Eustigmatophyta, *Eg* Euglenozoa, *H* Haptophyta, *O* Ochrophyta, *Pr* Prasinophyta

[b] Key to media: *F* fresh, *M* marine, *S* saline

[c] Key to references: 1 Adam (1997); 2 Ahmad and Hellebust (1990); 3 Apt and Behrens (1999); 4 Baker et al. (2007); 5 Becker (1994); 6 Ben-Amotz and Tornabene (1985); 7 Benider et al. (2001); 8 Beudeker and Tabita (1983); 9 Bhaud et al. (1991); 10 Bopp and Lettieri (2007); 11 Burlew (1953); 12 Butterwick et al. (2005); 13 Ceron-Garcia et al. (2000); 14 Chelf (1990); 15 Chisti (2007); 16 Coleman et al. (1988); 17 Collyer and Fogg (1954); 18 Constantopoulos and Bloch (1967); 19 Cook (1966); 20 Coombs et al. (1967); 21 De la Pena (2007); 22 Dempster and Sommerfield (1998); 23 Exley et al. (1993); 24 Ferguson et al. (1976); 25 Fisher et al. (1996); 26 Gatenby et al. (2003); 27 Goksan et al. (2007); 28 Goldman and Peavey (1979); 29 Greque de Morais et al. (2007); 30 Grobbelaar (2000); 31 Haury and Spiller (1981); 32 Hu and Gao (2003); 33 Illman et al. (2000); 34 Ishida et al. (2000); 35 Janssen et al. (2001); 36 Johansen et al. (1987); 37 Lee and Bazin (1991); 38 Lee (2001); 39 Li et al. (2008); 40 Liu et al. (2008); 41 Lu et al. (2001); 42 Maddux and Jones (1964); 43 Mansour et al. (2005); 44 Matsukawa et al. (2000); 45 McGinnis et al. (1997); 46 McKnight (1981); 47 Moheimani (2005); 48 Moheimani and Borowitzka( 2006); 49 Moore (1975); 50 Mourente et al. (1990); 51 Nagle and Lemke (1990); 52 Ostgaard and Jensen( 1982); 53 Parrish and Wangersky (1987); 54 Patil et al. (2007); 55 Piorreck et al. (1984); 56 Price et al. (1998); 57 Qiang et al. (1996); 58 Reitan et al. (1994); 59 Renaud et al. (1994); 60 Richardson et al. (1969); 61 Rodolfi et al. (2008); 62 Roessler (1990); 63 Sheehan et al. (1998); 64 Shehata and Kempner (1977); 65 Shifrin and Chisholm (1981); 66 Siron et al. (1989); 67 Sorokin and Krauss (1961); 68 Spoehr and Milner (1949); 69 Suen et al. (1987); 70 Taguchi et al. (1987); 71 Tomaselli et al. (1997); 72 Ugwu et al. (2007); 73 Vieira Costa et al. (2002); 74 Xu et al. (2006)