Table 2.1: The 52 cyano-mOTUs from the TYMEFLIES dataset after removing mOTUs that were below 85% completeness (Comp) and 10% contamination (Cont), and those that were deemed “rare” across the dataset (see Methods). The clade column describes our defined groupings for the cyano-mOTUs based on GTDB-tk taxon assignment (with adjustments documented in Methods), morphology and tree position (Figure 2.1).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| mOTU ID | Taxonomy | Comp | Cont | Morphology | Clade | GC% | Length | N50 |
| PSEUDA\_13 | Pseudanabaenaceae *Pseudanabaena* | 99.99 | 0.57 | Filamentous | Pseudanabaena | 41.9 | 4.68E6 | 2.20E4 |
| PSEUDA\_70 | Pseudanabaenaceae *Pseudanabaena sp014696925* | 93.09 | 0.04 | Filamentous | Pseudanabaena | 42.1 | 4.99E6 | 1.94E4 |
| PSEUDA\_281 | Pseudanabaenaceae *Pseudanabaena* | 96.97 | 0.2 | Filamentous | Pseudanabaena | 41.8 | 4.44E6 | 2.74E4 |
| PSEUDA\_157 | Pseudanabaenaceae *Pseudanabaena* | 93.53 | 0.51 | Filamentous | Pseudanabaena | 41.6 | 4.67E6 | 1.29E4 |
| PSEUDA\_31 | Pseudanabaenaceae *Pseudanabaena* | 99.89 | 0.18 | Filamentous | Pseudanabaena | 41.6 | 5.55E6 | 2.75E4 |
| NODOS\_103 | Phormidesmiaceae *Nodosilinea* | 94.75 | 1.21 | Filamentous | Nodosilinea | 58.2 | 4.64E6 | 8.4E3 |
| NODOS\_105 | Phormidesmiaceae *Nodosilinea* | 95.1 | 1.35 | Filamentous | Nodosilinea | 58.0 | 3.17E6 | 9.7E3 |
| CYANO\_45 | Microcoleaceae *Planktothrix agardhii* | 99.94 | 0 | Filamentous | Filamentous-1 | 39.6 | 4.64E6 | 1.06E5 |
| CYANO\_51\_1 | Microcoleaceae *Limnoraphis robusta* | 99.89 | 0.3 | Filamentous | Filamentous-1 | 41.8 | 6.87E6 | 3.76E4 |
| CYANO\_106 | Nostocaceae *Raphidiopsis brookii* | 98.25 | 0.29 | Filamentous | Filamentous-1 | 39.8 | 3.17E6 | 2.57E4 |
| CYANO\_84 | Nostocaceae *Cuspidothrix issatschenkoi* | 92.33 | 0.13 | Filamentous | Filamentous-1 | 37.6 | 4.51E6 | 1.51E4 |
| APHAN\_134 | Nostocaceae *Aphanizomenon flos-aquae* | 99.82 | 0.01 | Filamentous | Filamentous-1 | 37.0 | 4.38E6 | 5.89E4 |
| DOLIS\_187 | Nostocaceae *Dolichospermum sp000312705* | 99.97 | 0 | Filamentous | Filamentous-1 | 38.0 | 4.79E6 | 5.12E4 |
| DOLIS\_105 | Nostocaceae *Dolichospermum sp001277295* | 99.5 | 0.13 | Filamentous | Filamentous-1 | 38.3 | 5.28E6 | 1.48E4 |
| MCYST\_56 | Microcystaceae\_A Snowella | 99.87 | 0.18 | Branched | Snowella | 41.7 | 5.16E6 | 1.83E4 |
| MCYST\_62 | Microcystaceae Microcystis panniformis | 96.15 | 0.13 | Colonial | Microcystis | 42.8 | 4.45E6 | 2.07E4 |
| MCYST\_31 | Microcystaceae Microcystis aeruginosa | 85.56 | 0.62 | Colonial | Microcystis | 42.4 | 4.77E6 | 1.64E4 |
| MCYST\_2 | Microcystaceae Microcystis panniformis | 99.86 | 0 | Colonial | Microcystis | 42.6 | 4.79E6 | 2.60E4 |
| CYBIM\_15 | Cyanobiaceae *Cyanobium* | 95.03 | 0.67 | Solitary | Cyanobium | 67.1 | 2.68E6 | 1.20E4 |
| CYBIM\_76 | Cyanobiaceae *Cyanobium* | 99.74 | 0.19 | Solitary | Cyanobium | 67.3 | 3.02E6 | 1.25E5 |
| CYBIM\_77 | Cyanobiaceae *Cyanobium* | 96.82 | 1.17 | Solitary | Cyanobium | 67.6 | 3.23E6 | 7.54E4 |
| CYBIM\_22 | Cyanobiaceae Cyanobium sp014191755 | 88.67 | 3.5 | Solitary | Cyanobium | 66.6 | 3.04E6 | 1.34E4 |
| CYBIM\_90 | Cyanobiaceae Cyanobium sp014191755 | 88.1 | 0.5 | Solitary | Cyanobium | 66.1 | 2.99E6 | 4.01E4 |
| CYBIM\_39 | Cyanobiaceae *Cyanobium sp014191755* | 99.55 | 0.07 | Solitary | Cyanobium | 65.2 | 3.39E6 | 7.84E4 |
| CYBIM\_157 | Cyanobiaceae *Cyanobium sp014191755* | 99.85 | 0.34 | Solitary | Cyanobium | 65.0 | 3.70E6 | 1.47E5 |
| CYBIM\_104 | Cyanobiaceae *Cyanobium* | 99.81 | 0.34 | Solitary | Cyanobium | 65.0 | 3.75E6 | 8.84E4 |
| CYBIM\_89 | Cyanobiaceae *Cyanobium* | 99.44 | 0 | Solitary | Cyanobium | 63.9 | 2.78E6 | 8.42E4 |
| CYBIM\_60\_1 | Cyanobiaceae *Cyanobium* | 99.85 | 0.2 | Solitary | Cyanobium | 61.8 | 3.57E6 | 4.90E4 |
| CYBIM\_101 | Cyanobiaceae *Cyanobium* | 99.64 | 0.07 | Solitary | Cyanobium | 62.5 | 2.93E6 | 3.60E4 |
| CYBIM\_93 | Cyanobiaceae *Cyanobium* | 99.88 | 0.57 | Solitary | Cyanobium | 61.3 | 3.60E6 | 7.70E4 |
| CYBIM\_63 | Cyanobiaceae *Cyanobium* | 97.2 | 0.14 | Solitary | Cyanobium | 61.0 | 3.66E6 | 6.24E4 |
| CYBIM\_190 | Cyanobiaceae Cyanobium | 91.6 | 0.93 | Solitary | Cyanobium | 62.4 | 2.99E6 | 1.27E4 |
| CYBIM\_73\_1 | Cyanobiaceae *Cyanobium* | 96.19 | 0.82 | Solitary | Cyanobium | 61.8 | 3.24E6 | 4.58E4 |
| CYBIM\_200 | Cyanobiaceae UBA5018 | 99.71 | 0 | Solitary | Solitary-1 | 61.6 | 3.57E6 | 5.11E4 |
| CYBIM\_31 | Cyanobiaceae UBA5018 | 99.87 | 0.02 | Solitary | Solitary-1 | 60.7 | 3.40E6 | 3.98E4 |
| CYBIM\_51 | Cyanobiaceae UBA5018 | 92.11 | 0.37 | Solitary | Solitary-1 | 62.1 | 2.75E6 | 2.11E4 |
| CYBIM\_119\_1 | Cyanobiaceae RGUW01 | 90.41 | 0.84 | Solitary | Solitary-1 | 66.7 | 2.18E6 | 1.85E4 |
| CYBIM\_80 | Cyanobiaceae *Cyanobium\_A* | 91.87 | 0.77 | Solitary | Solitary-1 | 66.9 | 2.01E6 | 1.29E4 |
| CYBIM\_130\_1 | Cyanobiaceae *Cyanobium\_A* | 92.39 | 0.01 | Solitary | Solitary-1 | 67.3 | 2.32E6 | 3.61E4 |
| CYBIM\_160 | Cyanobiaceae NIES-981 | 99.99 | 0.13 | Solitary | Solitary-1 | 67.1 | 2.81E6 | 1.28E5 |
| CYBIM\_28 | Cyanobiaceae NIES-981 | 98.11 | 1.95 | Solitary | Solitary-1 | 67.6 | 2.27E6 | 9.5E3 |
| CYBIM\_52 | Cyanobiaceae NIES-981 | 99.98 | 1.41 | Solitary | Solitary-1 | 66.9 | 2.73E6 | 3.55E4 |
| CYBIM\_136\_1 | Cyanobiaceae NIES-981 | 99.99 | 0.29 | Solitary | Solitary-1 | 66.3 | 3.06E6 | 7.43E4 |
| CYBIM\_94 | Cyanobiaceae NIES-981 | 94.44 | 1.37 | Solitary | Solitary-1 | 67.7 | 2.58E6 | 1.83E4 |
| CYBIM\_119 | Cyanobiaceae NIES-981 | 100 | 0.12 | Solitary | Solitary-1 | 67.6 | 2.97E6 | 5.57E4 |
| CYBIM\_73 | Cyanobiaceae NIES-981 | 100 | 0.19 | Solitary | Solitary-1 | 67.6 | 3.01E6 | 1.30E5 |
| VULCA\_120 | Cyanobiaceae Vulcanococcus | 94.01 | 3.66 | Solitary | Vulcanococcus | 64.5 | 2.74E6 | 1.23E4 |
| VULCA\_20 | Cyanobiaceae Vulcanococcus | 89.16 | 0.41 | Solitary | Vulcanococcus | 68.2 | 2.23E6 | 1.52E4 |
| VULCA\_28 | Cyanobiaceae Vulcanococcus | 89.63 | 0.01 | Solitary | Vulcanococcus | 68.2 | 1.90E6 | 2.71E4 |
| VULCA\_96 | Cyanobiaceae Vulcanococcus | 89.22 | 1.66 | Solitary | Vulcanococcus | 68.7 | 2.01E6 | 1.90E4 |
| VAMPV\_156 | Obscuribacteraceae Ga0077546 | 98.54 | 9.32 | NA | Root | 48.2 | 7.48E6 | 9.05E4 |
| VAMPV\_261 | Obscuribacteraceae Ga0077546 | 92.67 | 2.42 | NA | Root | 51.7 | 6.23E6 | 9.1E3 |