**SUPPORTING INFORMATION**

**Temperature induces metabolic alteration in a bloom-forming diatom *Coscinodiscus granii* during host-parasite interactions with a marine oomycete**

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**Table S1.** Study of infection rate monitored using starting cell densities of 200 cells per mL after seven days of incubation. The average infection rate were determined for biological replicates (n = 3).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sample | Biological replicate | Total cell count | Number of infected cells (sporangia) | Number of healthy cells | Infection rate (infectivity) (%) |
| 13⁰C Algae – no parasite | 1CG01 | 291 | 0 | 0 | 0 |
| 1CG03 | 348 | 0 | 0 | 0 |
| 1CG04 | 322 | 0 | 0 | 0 |
| 13°C Alga + parasite | 1CG05 | 226 | 37 | 189 | 16.37168142 |
| 1CG06 | 248 | 55 | 193 | 22.17741935 |
| 1CG07 | 246 | 62 | 184 | 25.20325203 |
| 25⁰C Algae – no parasite | 1CG17 | 330 | 0 | 0 | 0 |
| 1CG18 | 390 | 0 | 0 | 0 |
| 1CG19 | 371 | 0 | 0 | 0 |
| 25⁰C Alga + parasite | 1CG22 | 380 | 46 | 334 | 12.10526316 |
| 1CG23 | 367 | 28 | 339 | 7.629427793 |
| 1CG24 | 334 | 17 | 317 | 5.089820359 |

**Table S2.** Selected differentially expressed metabolites in *C. granii* cells, treated with the marine parasite and grown at two temperatures. These compounds were elucidated by HR-MS, MS2, and library comparison using SIRIUS/GNPS/Compound Discoverer. Metabolites with proven identity by comparison with analytical standards are marked **in bold \***.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **RT (min)** | **Chemical formula** | **Observed *m/z*** | **Mass deviation (ppm)** | **Adduct** | **Column** | **Compound name (SIRIUS and/or GNPS)** | **Database GNPS match link** | **Diagnostic fragments** |
| 4.42 | C3H7NO3 | 106.0505 | 6.79 | [M+H]+ | Zic-hilic | **Serine \***  [CHEBI:17822](https://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI:17822) | [CCMSLIB00012476633](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476637&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476633&width=10.0&height=5.0&mz_min=50.0&mz_max=110.0&max_intensity=160&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=False&annotate_peaks=%5B%5B70.06547546386719%2C%2088.07575988769531%2C%20106.08628845214844%5D%2C%20%5B70.06546783447266%2C%2088.07575225830078%2C%20106.08618927001953%5D%5D) | 88.0758, 70.0655 |
| 4.17 | C5H9NO3 | 132.0663 | 6.49 | [M+H]+ | Zic-hilic | L-4-hydroxyproline  [CHEBI:16231](https://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI:16231) | [CCMSLIB00006682247](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-543248c3edaf406bb396fa1640cddcd8-spectra%2Fspecs_ms.mgf%3Ascan%3A13136&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00006682247&width=10.0&height=6.0&mz_min=None&mz_max=None&max_intensity=125&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=True&annotate_peaks=%5B%5B68.05037689208984%2C%2086.06077575683594%5D%2C%20%5B68.04850006103516%2C%2086.05899047851562%2C%20132.06492614746094%5D%5D) | 86.0608, 68.0504 |
| 4.62 | C5H10O2S | 135.0481 | 5.66 | [M+H]+ | Zic-hilic | **DMSP \***  [CHEBI:16457](https://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI:16457) | [CCMSLIB00006716179](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-543248c3edaf406bb396fa1640cddcd8-spectra%2Fspecs_ms.mgf%3Ascan%3A13296&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00006716179&width=10.0&height=6.0&mz_min=None&mz_max=None&max_intensity=125&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=True&annotate_peaks=%5B%5B63.02724838256836%2C%2073.02925109863281%5D%2C%20%5B73.02860260009766%2C%20135.04766845703125%5D%5D) | 73.0293, 63.0272 |
| 4.33 | C5H10N2O3 | 145.0609 | -6.21 | [M-H]- | Zic-hilic | Glutamine  [CHEBI:28300](https://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI:28300) | [CCMSLIB00006121585](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-543248c3edaf406bb396fa1640cddcd8-spectra%2Fspecs_ms.mgf%3Ascan%3A9776&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00006121585&width=10.0&height=6.0&mz_min=None&mz_max=None&max_intensity=125&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=True&annotate_peaks=%5B%5B63.861637115478516%2C%2074.02386474609375%2C%2084.04478454589844%2C%20109.0400619506836%2C%20127.05050659179688%5D%2C%20%5B58.029598236083984%2C%2074.02449798583984%2C%2084.04530334472656%2C%20109.04049682617188%2C%20127.05110168457031%2C%20145.06179809570312%5D%5D) | 127.0505, 109.0401, 84.0448, 74.0239 |
| 4.09 | C3H9NO4S | 156.0332 | 4.93 | [M+H]+ | Zic-hilic | **Cysteinolic** **acid \*** | [CCMSLIB00008851455](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-543248c3edaf406bb396fa1640cddcd8-spectra%2Fspecs_ms.mgf%3Ascan%3A13094&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00008851455&width=10.0&height=6.0&mz_min=None&mz_max=None&max_intensity=125&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=True&annotate_peaks=%5B%5B56.05048751831055%2C%20138.0229034423828%5D%2C%20%5B56.04983139038086%2C%20138.02203369140625%2C%20156.0323028564453%5D%5D) | 138.0229, 74.0609, 56.0505, 58.0661, 60.0454 |
| 4.65 | C7H15NO3 | 162.1131 | 4.47 | [M+H]+ | Zic-hilic | **Carnitine \***  [CHEBI:39547](https://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI:39547) | [CCMSLIB00006679452](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-543248c3edaf406bb396fa1640cddcd8-spectra%2Fspecs_ms.mgf%3Ascan%3A13339&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00006679452&width=10.0&height=6.0&mz_min=50.0&mz_max=165.0&max_intensity=125&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=True&annotate_peaks=%5B%5B60.08173751831055%2C%2085.02909088134766%2C%20103.0396728515625%5D%2C%20%5B60.08100891113281%2C%20103.03904724121094%2C%20162.1126251220703%5D%5D) | 103.0397, 85.0291, 60.0817 |
| 5.69 | C6H14N4O2 | 173.1032 | -6.54 | [M-H]- | Zic-hilic | Arginine  [CHEBI:32697](https://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI:32697) | [CCMSLIB00010102660](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-543248c3edaf406bb396fa1640cddcd8-spectra%2Fspecs_ms.mgf%3Ascan%3A10275&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00010102660&width=10.0&height=6.0&mz_min=None&mz_max=None&max_intensity=125&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=True&annotate_peaks=%5B%5B131.0817413330078%2C%20154.94654846191406%5D%2C%20%5B131.08299255371094%5D%5D) | 154.9465, 131.0817, 114.0553 |
| 5.97 | C9H20N2O2 | 189.1607 | 5.23 | [M+H]+ | Zic-hilic | Trimethyllysine  [CHEBI:17311](https://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI:17311) | [CCMSLIB00010103159](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-543248c3edaf406bb396fa1640cddcd8-spectra%2Fspecs_ms.mgf%3Ascan%3A13806&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00010103159&width=10.0&height=6.0&mz_min=None&mz_max=None&max_intensity=125&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=True&annotate_peaks=%5B%5B60.081756591796875%2C%2070.06602478027344%2C%2084.0815200805664%2C%20130.08717346191406%5D%2C%20%5B60.08140182495117%2C%2084.081298828125%2C%20130.08599853515625%2C%20189.16000366210938%5D%5D) | 130.0872, 84.0815, 60.0818 |
| 4.28 | C9H17NO4 | 204.1239 | 4.46 | [M+H]+ | Zic-hilic | A**cetylcarnitine \***  [CHEBI:73024](https://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI:73024) | [CCMSLIB00006678577](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-543248c3edaf406bb396fa1640cddcd8-spectra%2Fspecs_ms.mgf%3Ascan%3A13171&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00006678577&width=10.0&height=6.0&mz_min=None&mz_max=None&max_intensity=125&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=True&annotate_peaks=%5B%5B60.08173751831055%2C%2085.02909851074219%2C%20145.05043029785156%5D%2C%20%5B60.080989837646484%2C%2085.02839660644531%2C%20145.04953002929688%2C%20204.123046875%5D%5D) | 145.0504, 85.0291, 60.0817 |
| 4.13 | C10H19NO4 | 218.1395 | 4.134 | [M+H]+ | Zic-hilic | Propanoyl-carnitine  [CHEBI:53210](https://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI:53210) | [CCMSLIB00006678782](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-543248c3edaf406bb396fa1640cddcd8-spectra%2Fspecs_ms.mgf%3Ascan%3A13129&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00006678782&width=10.0&height=6.0&mz_min=None&mz_max=None&max_intensity=125&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=True&annotate_peaks=%5B%5B60.0817756652832%2C%2085.02913665771484%2C%20159.0660858154297%5D%2C%20%5B60.081031799316406%2C%2085.02847290039062%2C%20159.06524658203125%2C%20218.1388702392578%5D%5D) | 159.0661, 85.0291, 60.0818 |
| 3.76 | C12H10N4O2 | 243.0887 | 4.5 | [M+H]+ | C18 | **Lumichrome \***  [CHEBI:17781](https://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI:17781) | [CCMSLIB00010105809](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-543248c3edaf406bb396fa1640cddcd8-spectra%2Fspecs_ms.mgf%3Ascan%3A5262&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00010105809&width=10.0&height=6.0&mz_min=50.0&mz_max=300.0&max_intensity=125&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=True&annotate_peaks=%5B%5B65.0639419555664%2C%20172.08767700195312%2C%20200.08297729492188%2C%20216.0778045654297%5D%2C%20%5B172.08670043945312%2C%20200.0816650390625%2C%20216.07655334472656%2C%20243.08731079101562%5D%5D) | 216.0766, 200.0817, 172.0867 |
| 8.25 | C20H30O2 | 303.2327 | -0.27 | [M+H]+ | C18 | **Eicosapentaenoic acid \***  [CHEBI:28364](https://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI:28364) | [CCMSLIB00012476635](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-486f531f21b64e5e97acddd84a41868a-spec%2Fspec-00000.mzXML%3Ascan%3A1&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476635&width=10.0&height=5.0&mz_min=50.0&mz_max=310.0&max_intensity=180&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=False&annotate_peaks=%5B%5B67.05464935302734%2C%2081.07005310058594%2C%20109.10124206542969%2C%20121.1011734008789%2C%20135.11668395996094%2C%20161.1324920654297%2C%20303.23199462890625%5D%2C%20%5B67.0545654296875%2C%2081.07003021240234%2C%20109.10112762451172%2C%20121.10108947753906%2C%20135.1166534423828%2C%20161.1325225830078%2C%20303.2317810058594%5D%5D) | 161.1325, 135.1167, 121.1011, 109.1011, 81.0700, 67.0546 |
| 0.79 | C10H13N5 O4 | 268.1048 | 2.99 | [M+H]+ | C18 | Adenosine  [**CHEBI:16335**](https://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI:16335) | [CCMSLIB00005464314](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-543248c3edaf406bb396fa1640cddcd8-spectra%2Fspecs_ms.mgf%3Ascan%3A4040&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00005464314&width=10.0&height=6.0&mz_min=None&mz_max=None&max_intensity=125&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=True&annotate_peaks=%5B%5B57.03436279296875%2C%2085.02903747558594%2C%20115.03961944580078%2C%20136.06272888183594%5D%2C%20%5B57.034358978271484%2C%2085.02908325195312%2C%20115.03937530517578%2C%20136.06219482421875%5D%5D) | 136.0627, 115.0396, 85.0290, 57.034 |

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**Figure S1.** Cell density of diatom *Coscinodiscus granii* cultivated at 13 and 25°C.

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**Figure S2.** Chromatographic profile of zwitterionic metabolites from *C. granii* using UHPLC (Zic-Hilic column) with detection by ESI-HRMS. **A** Total Ion Chromatogram (TIC) in positive polarity of cell extract profile from QC sample, **B** Extracted Ion Chromatogram of Serine ion trace, *m/z* 106.0863, **C** Carnitine ion trace *m/z* 162.1125, **D** Extracted Ion Chromatogram of Acetyl carnitine, ion trace *m/z* 204.1229, **E** Extracted Ion Chromatogram of DMSP, ion trace *m/z* 135.0472, **F** Extracted Ion Chromatogram of Cysteinolic acid, ion trace *m/z* 156.0324.

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**Figure S3.** Chromatographic profile of non-polar metabolites from *C. granii* using UHPLC (C18 column) with detection by ESI-HRMS. **A** Total Ion Chromatogram (TIC) in positive polarity of cell extract profile from QC sample, **B** Extracted Ion Chromatogram of lumichrome, ion trace *m/z* 243.0878, **C** Extracted Ion Chromatogram of eicosapentaenoic acid, ion trace *m/z* 243.0878.

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**Figure S4.** Comparison of MS/MS spectra of carnitine from coinjection studies of algal QC sample(upper plot)and reference standard (bottom plot). The link can be found here: [CCMSLIB00012476631](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-82f30575d54e471c90bc6b3052a5fc23-spec%2Fspec-00000.mzXML%3Ascan%3A1&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476631&width=10.0&height=5.0&mz_min=50.0&mz_max=170.0&max_intensity=160&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=False&annotate_peaks=%5B%5B162.11248779296875%2C%2060.08124923706055%2C%20103.03895568847656%2C%2085.02854919433594%5D%2C%20%5B162.11245727539062%2C%20103.03887939453125%2C%2060.081207275390625%2C%2085.02847290039062%5D%5D).

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**Figure S5.** Comparison of MS/MS spectra of acetylcarnitine from coinjection studies of algal QC sample (upper plot)and reference standard (bottom plot). The link can be found here: [CCMSLIB00012476630](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476638&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476630&width=10.0&height=5.0&mz_min=50.0&mz_max=210.0&max_intensity=160&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=False&annotate_peaks=%5B%5B60.08120346069336%2C%2085.02845001220703%2C%20145.04934692382812%2C%20204.12290954589844%5D%2C%20%5B60.08123016357422%2C%2085.02852630615234%2C%20145.04945373535156%2C%20204.12289428710938%5D%5D)

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**Figure S6.** Comparison of MS/MS spectra of serine from coinjection studies of algal QC sample(upper plot)and reference standard (bottom plot). The link can be found here: [CCMSLIB00012476633](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476637&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476633&width=10.0&height=5.0&mz_min=50.0&mz_max=110.0&max_intensity=160&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=False&annotate_peaks=%5B%5B88.07575988769531%2C%2070.06547546386719%2C%20106.08628845214844%5D%2C%20%5B88.07575225830078%2C%20106.08618927001953%2C%2070.06546783447266%5D%5D)

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**Figure S7.** Comparison of MS/MS spectra of DMSP from coinjection studies of algal QC sample(upper plot)and reference standard (bottom plot). The link can be found here: [CCMSLIB00012476634](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476639&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476634&width=10.0&height=5.0&mz_min=50.0&mz_max=140.0&max_intensity=160&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=False&annotate_peaks=%5B%5B73.02867889404297%2C%2063.02668380737305%2C%20135.0471649169922%2C%2066.40105438232422%5D%2C%20%5B73.02870178222656%2C%2063.026763916015625%2C%20135.0472869873047%2C%2066.39994812011719%5D%5D)

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**Figure S8.** Comparison of MS/MS spectra of cysteinolic acid from coinjection studies of algal QC sample(upper plot)and reference standard (bottom plot). The link can be found here: [CCMSLIB00012476632](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476639&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476634&width=10.0&height=5.0&mz_min=50.0&mz_max=140.0&max_intensity=160&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=False&annotate_peaks=%5B%5B73.02867889404297%2C%2063.02668380737305%2C%20135.0471649169922%2C%2066.40105438232422%5D%2C%20%5B73.02870178222656%2C%2063.026763916015625%2C%20135.0472869873047%2C%2066.39994812011719%5D%5D)

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**Figure S9.** Comparison of MS/MS spectra of eicosapentaenoic acid from coinjection studies of algal QC sample(upper plot)and reference standard (bottom plot). The link can be found here: [CCMSLIB00012476635](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3ATASK-486f531f21b64e5e97acddd84a41868a-spec%2Fspec-00000.mzXML%3Ascan%3A1&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476635&width=10.0&height=5.0&mz_min=50.0&mz_max=310.0&max_intensity=180&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=False&annotate_peaks=%5B%5B303.23199462890625%2C%2081.07005310058594%2C%20121.1011734008789%2C%20161.1324920654297%2C%20109.10124206542969%2C%20135.11668395996094%2C%2067.05464935302734%5D%2C%20%5B303.2317810058594%2C%2081.07003021240234%2C%20121.10108947753906%2C%20161.1325225830078%2C%20109.10112762451172%2C%20135.1166534423828%2C%2067.0545654296875%5D%5D)

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**Figure S10.** Comparison of MS/MS spectra of lumichrome from *C. granii* (upper plot)and reference standard (bottom plot) The link can be found here: [CCMSLIB00012475013](https://metabolomics-usi.gnps2.org/dashinterface/?usi1=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476639&usi2=mzspec%3AGNPS%3AGNPS-LIBRARY%3Aaccession%3ACCMSLIB00012476634&width=10.0&height=5.0&mz_min=50.0&mz_max=140.0&max_intensity=160&annotate_precision=4&annotation_rotation=90&cosine=standard&fragment_mz_tolerance=0.1&grid=False&annotate_peaks=%5B%5B73.02867889404297%2C%2063.02668380737305%2C%20135.0471649169922%2C%2066.40105438232422%5D%2C%20%5B73.02870178222656%2C%2063.026763916015625%2C%20135.0472869873047%2C%2066.39994812011719%5D%5D)

A graph of red and black dots

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**Figure S11**. Volcano plot analysis of comparative metabolomics data for *C. granii* was extracted after the parasite treatment, cultured at 13°C and 25°C, and analyzed via LC-MS using ZIC-HILIC column. Red dots show statistically significant up and down-regulated metabolites in parasite-treated cultures grown at 13°C vs. 25°C for significant features with p-value < 0.05 and fold change > 2.

A graph with red dots and black text

Description automatically generated

**Figure S12.** Volcano plot analysis of comparative metabolomics data for *C. granii* cells extracted after parasite treatment grown at 13°C and 25°C. The data was then analyzed via LC-MS using the C18 column. Red dots show statistically significant up and down-regulated metabolites in parasite-treated cultures grown at 13°C vs. 25°C for significant features with p-value < 0.05 and fold change > 2.

A graph of red dots and black lines

Description automatically generated

**Figure S13**. Volcano plot analysis of comparative metabolomics data for *C. granii* cells extracted after being cultured at 13°C and 25°C and analyzed via LC-MS using the ZIC-HILIC column. Red dots show statistically significant up and down-regulated metabolites in untreated cultures grown at 13°C vs. 25°C for significant features with p-value < 0.05 and fold change > 2.

A graph of red dots

Description automatically generated

**Figure S14.** Volcano plot analysis of comparative metabolomics data for *C. granii* cells extracted after being cultured at 13°C and 25°C was analyzed via LC-MS using the C18 column. Red dots show statistically significant up and down-regulated metabolites in untreated cultures grown at 13°C vs. 25°C for significant features with p-value < 0.05 and fold change > 2.

A graph of a number of red dots

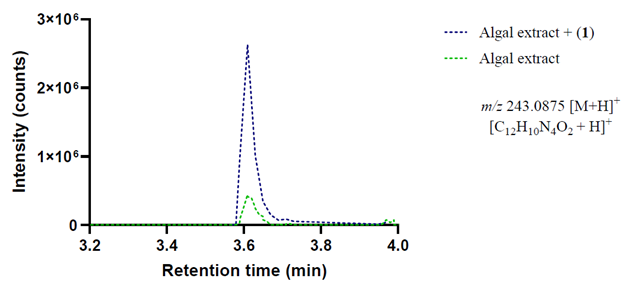
Description automatically generated with medium confidence

**Figure S15.** Volcano plot analysis of comparative metabolomics data for *C. granii* cells extracted after being cultured at 13°C and 25°C was analyzed via LC-MS using the ZIC-HILIC column. Red dots show statistically significant up- and down-regulated metabolites in untreated vs. parasite-treated cultures. Significant features with p-value < 0.05 and fold change > 2.

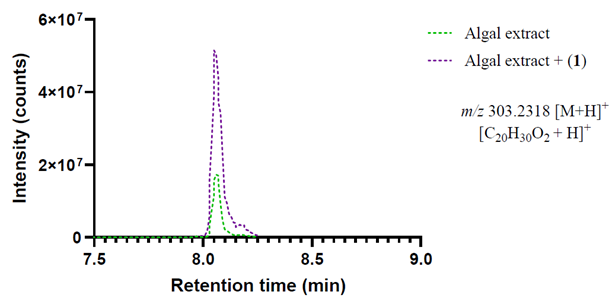
A graph of a number of red dots

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**Figure S16**. Volcano plot analysis of comparative metabolomics data for *C. granii* cells extracted after being cultured at 13°C and 25°C, and analyzed via LC-MS using the C18 column. Red dots show statistically significant up and down-regulated metabolites in untreated vs. parasite-treated cultures. Significant features with p-value < 0.05 and fold change > 2.



**Figure S17.** EIC (*m/z*) of *C. granii* (dashed green line) and the same extract spiked with synthetic lumichrome (dashed blue line).



**Figure S18.** EIC (*m/z*) of *C. granii* (dashed green line) and the same extract spiked with synthetic eicosapentanoic acid (dashed purple line).