**Supplementary Information**

# Embracing the Allelopathic Potential of Invasive Aquatic Plants to Manipulate Freshwater Ecosystems

Sam A. Reynolds1\*, David C. Aldridge1,2

1Department of Zoology, University of Cambridge, The David Attenborough Building, Pembroke Street Cambridge CB2 3QZ, UK.

2BioRISC, St. Catharine’s College, Cambridge, CB2 1RL, UK

\*Corresponding author: sar87@cam.ac.uk, (+44) 07846003387

**Table S1. Previous Work on allelopathic effects of aquatic plants on algae and cyanobacteria.** This table outlines all the current work which has been undertaken concerning the allelopathic effect of aquatic plants on algae and cyanobacteria. It outlines the species of plant used, the method applied to the plant material, the allelochemicals found to be contained within the relevant species, and the algae and/or cyanobacteria the plant was shown to affect. This table is adapted from Mohamed, 2017, with additional experimental results added. The list of references cited follow the table.

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| *Species* | *Plant material tested* | *Allelochemicals Contained* | *Algae and/or Cyanobacteria Inhibited* | *Reference* |
| *Acorus calamus* | Extract | Phenylpropanes | *Anabaena flos-aquae, Aphanizomenon flos-aquae, Microcystis aeruginosa* | (Greca *et al.*, 1989; Zhang, 2015; Zhang, Zhang and Li, 2016) |
| *Acorus gramineus* | Extract | Phenylpropanes | *Microcystis aeruginosa* | (Greca *et al.*, 1989; Nakai, S., Zou, G., Okuda, T., Tsai, T.-Y., Song, X., Nishijima, W., Okada, 2010) |
| *Acorus tatarinowii* | Exudate | Phenylpropanes | *Anabaena flos-aquae, Synecococcus leopoliensis, Microcystis aeruginosa* | (Greca *et al.*, 1989; He and Wang, 2001) |
| *Arundo donax* | Extract | Gramine (N,N-dimethyl-3-amino-methylindole) | *Microcystis aeruginosa* | (Hong, Hu and Li, 2008; Hong, Huang and Hu, 2009) |
| *Eleocharis acicularis* | Co-cultivation | Unknown | *Anabaena flos-aquae, Microcystis aeruginosa, Phormidium tenue* | (Nakai *et al.*, 1999) |
| *Phragmites australis* | Extract | Unknown | *Microcystis aeruginosa, Scenedesmus acutus* | (Nakai, S., Zou, G., Okuda, T., Tsai, T.-Y., Song, X., Nishijima, W., Okada, 2010; Chicalote-Castillo, Ramirez-Garcia and Macias-Rubalcava, 2017) |
| *Phragmites communis* | Extract Fraction | Ethyl 2-methylacetoacetate, phenolic acids (p-coumaric acid, ferulic acid), caffeic acid (gallic acid), fatty acid (stearic acid) | *Microcystis aeruginosa, Phormidium* sp. | (Zhou *et al.*, 2004; Li and Hu, 2005) |
| *Scirpus tabernaemontani* | Extract | Unknown | *Microcystis aeruginosa* | (Nakai, S., Zou, G., Okuda, T., Tsai, T.-Y., Song, X., Nishijima, W., Okada, 2010) |
| *Thalia dealbata* | Extract | Unknown | *Anabaena flos-aquae, Microcystis aeruginosa* | (Zhang *et al.*, 2011) |
| *Typha latifolia* | Extract | Steroids, fatty acids. | *Anabaena flos-aquae, Microcystis aeruginosa* | (Aliotta *et al.*, 1990) |
| *Typha angustifolia* | Extract | Phenic acids (o-hydroxycinnamic acid, syringic acid and isoferulic acid | *Synechococcus leopoliensis* | (Zhang, Hu and Zhang, 2011) |
| *Brasenia scherberi* | Extract | Unknown | *Anabaena flos-aquae* | (Elakovich and Wooten, 1987) |
| *Cambomba caroliniana* | Co-cultivation | Unknown | *Anabaena flos-aquae, Microcystis aeruginosa, Phormidium tenue* | (Nakai *et al.*, 1999) |
| *Eichhornia crassipes* | Extract | N-phenyl-1-naphthylamine, linoleic acid, benzoindenone | *Anabaena azollae, Microcystis aeruginosa* | (Wu *et al.*, 2012) |
| *Lemma minor* | Co-cultivation | Unknown | *Microcystis aeruginosa* | (Jang, Ha and Takamura, 2007) |
| *Nelumbo nucifera* | Extract | Propanamide | *Microcystis aeruginosa* | (Hong, Hu and Li, 2008; He, L.S., Meng, F.L., Diao, X.J., Li, Y.W., Meng, R., Xi, B.D., Shu, 2013) |
| *Pista stratiotes* | Extract | Polyphenols, linoleic acid, linolenic acid, fatty acids, steroidal ketones | *Microcystis aeruginosa* | (Aliotta *et al.*, 1991; Wu *et al.*, 2013) |
| *Stratiotes aloides* | Extract | Moderately lipophilic non- phenolic compounds | *Anabaena variabilis, Microcystis aeruginosa, Synechococcus elongatus* | (Mulderij *et al.*, 2007; Mohamed and Al Shehri, 2010) |
| *Ceratophyllum demersum* | Extract | Element sulfides, labile sulfur compounds | *Microcystis aeruginosa, Anabaena* sp.*, Synechococcus elongatus, A. variabilis.* | (Gross, Erhard and Iványi, 2003; Hong, Hu and Li, 2008) |
| *Egeria densa* | Co-cultivation | Unknown | *Cyanobacteria* | (Nakai *et al.*, 1999) |
| *Elodea canadensis* | Exudate/Extract | Phenolic compounds | *Epiphytic cyanobacteria* | (Erhard and Gross, 2006) |
| *Elodea nuttalii* | Exudate/Extract | Phenolic compounds | *Epiphytic cyanobacteria* | (Erhard and Gross, 2006) |
| *Hydrilla verticillata* | Exudate/Extract | Phenolic compound (vanillic acid, protocatechic acid, ferulic acid, caffeic acid) | *Microcystis aeruginosa* | (Wang, L.X., Zhang, L., Zhang, Y.X., Jin, C.Y., Lu, C.M., Wu, 2006; Y. Gao, B.Liu, D.Xu, Q. Zhou, C. Hu, F. Ge, L. Zhang, 2011; Zhang *et al.*, 2012) |
| *Limnophila sessiliflora* | Co-cultivation | Unknown | *Cyanobacteria* | (Nakai *et al.*, 1999) |
| *Myriophyllum brasiliense* | Extract | Polyphenol-like alleochemicals | *Microcystis aeruginosa* | (Saito *et al.*, 1989) |
| *Myriophyllum spicatum* | Co-cultivation | Tellimagrandin II, pyrogallic acid, gallic acid, ellagic acid, (+)-catechin | *Microcystis aeruginosa* | (Nakai, Yamada and Hosomi, 2005; Zhu *et al.*, 2010) |
| *Myriophyllum verticillatum* | Extract | a-asarone, phenylpropane, glycoside-like allelochemicals | *Microcystis aeruginosa, Limnothrix redeke* | (Aliotta *et al.*, 1992; Hilt, 2006) |
| *Najas marina* | Extract | Hydrophilic and moderately lipophilic allelochemicals | *Anabaena variabilis, Synechococcus elongatus* | (Gross, Erhard and Iványi, 2003) |
| *Potamogeton malaianus* | Co-cultivation/Exudate | Diterpenes, linolenic acid | *Microcystis aeruginosa* | (Hu and Hong, 2008; Zhang, S.H., Cheng, S.P., Wang, H.Q., He, F., Wu, 2009) |
| *Potamogeton maackianus* | Co-cultivation/Exudate | Diterpenes, linolenic acid | *Microcystis aeruginosa* | (Hu and Hong, 2008; Zhang, S.H., Cheng, S.P., Wang, H.Q., He, F., Wu, 2009) |
| *Potamogeton pectinastusm* | Co-cultivation/Exudate | Diterpenes, linolenic acid | *Microcystis aeruginosa* | (Hu and Hong, 2008; Zhang, S.H., Cheng, S.P., Wang, H.Q., He, F., Wu, 2009) |
| *Potamogeton pusillus* | Exudate | Unknown | *Microcystis aeruginosa* | (Takeda *et al.*, 2011) |
| *Potamogeton lucens* | Extract | Unknown | *Anabaena variabilis* | (Jasser, 1995) |
| *Potamogeton crispus* | Co-cultivation/Exudate/Extract | Unknown | *Anabaena variabilis Microcystis aeruginosa* | (Pakdel *et al.*, 2013) |
| *Potamogeton oxyphyllys* | Co-cultivation/Exudate/Extract | Unknown | *Anabaena variabilis Microcystis aeruginosa* | (Nakai *et al.*, 1999) |
| *Vallisneria denseserrulata* | Co-cultivation | 2-ethyl-3- methylmaldeimide, carotene derivatives | *Microcystis aeruginosa* | (Xian *et al.*, 2006; Gao, Y., Liu, B., Xu, D., Zhou, Q., Hu, C., Ge, F., Zhang, L., Wu, 2011) |
| *Chara aspra* | Extract | 4-methylthio-1,2-dithiolane and 5-hydroxy-1,2,3-trithiane. | *Anabaena cylindrica, A. torulosa, Anabaenopsis elenkinii, M. aeruginosa, Synechococcus* sp. | (Berger, J., Schagerl, 2004; Złoch *et al.*, 2018) |
| *Chara globularis* | Extract | 4-methylthio-1,2-dithiolane and 5-hydroxy-1,2,3-trithiane. | *Anabaena cylindrica, A. torulosa, Anabaenopsis elenkinii, M. aeruginosa* | (Berger, J., Schagerl, 2004; Złoch *et al.*, 2018) |
| *Nitellopsis obtuse* | Extract | 4-methylthio-1,2-dithiolane and 5-hydroxy-1,2,3-trithiane. | *Anabaena cylindrica, A. torulosa, Anabaenopsis elenkinii, M. aeruginosa* | (Berger, J., Schagerl, 2004; Złoch *et al.*, 2018) |
| *Nitella gracilis* | Extract | 4-methylthio-1,2-dithiolane and 5-hydroxy-1,2,3-trithiane. | *Anabaena cylindrica, A. torulosa, Anabaenopsis elenkinii, M. aeruginosa* | (Berger, J., Schagerl, 2004; Złoch *et al.*, 2018) |
| *Chara australis* | Extract/Exudate | Unknown | *Anabaena variabilis* | (Pakdel *et al.*, 2013) |
| *Chara hispida* | Exudate | Unknown | *Pseudanabaena* sp. | (Rojo, Segura and Rodrigo, 2013) |
| *Chara vulgaris* | Exudate | Unknown | *Pseudanabaena* sp. | (Rojo, Segura and Rodrigo, 2013) |
| *Chara baltica* | Exudate | Unknown | *Pseudanabaena* sp.*, Synechococcus* sp. | (Rojo, Segura and Rodrigo, 2013; Złoch *et al.*, 2018) |
| *Nitella hyalina* | Exudate | Unknown | *Pseudanabaena* sp. | (Rojo, Segura and Rodrigo, 2013) |
| *Alternanthera philoxeroides* | Pure Chemicals | Coumarin, L-hydroxybenzoic acid, protocatechuic acid, stearic acid, and L-aminobenz enesulfonic acid | *Chlorella pyrenoidosa* | (Zuo *et al.*, 2016) |
| *Chara canescens* | Extract | Unknown | *Synechococcus* sp. | (Złoch *et al.*, 2018) |
| *Schoenoplectus californicus* | Extract | Unknown | *Microcystis aeruginosa, Scenedesmus acutus* | (Chicalote-Castillo, Ramirez-Garcia and Macias-Rubalcava, 2017) |

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