

引用文献

- 1) Francis, G.: Poisonous Australian lake, Nature (London) ,18, pp.11~12(1987)
- 2) Carmichael, W.W. : Cyanobacteria secondary metabolites - the cyanotoxins, J. Appl. Bacteriol., 72, 445-459(1992)
- 3) Falconer, I.R., Runneger, M.T.C., Buckley, T., Hun, V.L. and Bradshaw, P.: Using activated carbon to remove toxicity from drinking water containing cyanobacterial blooms, J.-Am. Wat. Works Assoc., 81, 102-105(1989)
- 4) 渡辺真利代, 原田健一: アオコとその毒素, 水処理技術, 33, 337-344(1992)
- 5) Carmichael, W.W.: The toxins of cyanobacteria, Scientific American, 270, 64-72(1994)
- 6) Carmichael, W.W., Azevedo, An. J.S., Lau, M.F.O., Rinehart, S., Jochimsen, K.L., Holms, E. M., Silva, Jr. J.B.: Analysis for microcystins in an outbreak of liver failure and death of humans at a hemodialysis center in Caruaru, Pernambuco Brazil, Simpósio da sociedade Brasileira de toxicologia, 4 th, 85-86(1996)
- 7) Wheeler, R.E., Lackey, J.B. and Schott, S.: A contribution on the toxicity of algae., Public Health Rep., 57, 1695-1701(1942)
- 8) Himberg, K., Keijola, A.M., Hsvirta, L., Pyysalo, H. and Sivonen, K.: The effect of water treatment processes on the removal of hepatotoxins from *Microcystis* and *Oscillatoria* cyanobacteria: A laboratory study. Wat. Res. ,29, 979-984(1989)
- 9) Nigel J.D.G., Valerie E.W., Roger P. and Jia-Qian J.: The significance of algae as trihalomethane precursors, Wat. Sci. Tech., 37(2), 83-89(1998)
- 10) Rook, J.J.: Formation of haloforms during chlorination of natural waters, Wat. Treat. and Exam., 23, 234-243(1974)
- 11) Keijola, A.M., Himberg, K., Esala, A.L., Sivonen, K. and Hiisvirta, L.: Removal of cyanobacterial toxins in water treatment processes: laboratory and pilot-scale experiments. Tox. Assess. ,3, 643-656(1988)
- 12) Falconer, I.R. and Buckley, T.H., Tumour promotion by *Microcystis*. A blue-green alga occurring in water supplies, Med. J. Austral., 150, 351(1989)
- 13) Gorham, P.R. and Carmichael, W.W.: Phycotoxins from blue-green algae, Pure and Applied Chemistry, 52, 165-174, (1979)
- 14) 稲森悠平、秋元里乃: 生物膜の有用微生物によるアオコの分解と高度浄化, 水環境学会誌, 17(9), 557-561(1994)

- 15)大内山高広:汚濁湖水の生物処理におけるカビ臭物質 2-MIB の分解に及ぼす微小動物の役割,博士論文(1994)
- 16)杉浦則夫:霞ヶ浦におけるアオコの発生と対策,水環境学会誌,17,540-544,(1994)
- 17)Carmichael,W.W.:Freshwater cyanobacteria (blue-green algae) toxins.In:C.L.Ownby and G.V.Odell(eds)Natural Toxins.Pergamon Press., Oxford.,3-16(1988)
- 18)杉浦則夫:霞ヶ浦におけるアオコの発生と対策,水環境学会誌,17,540-544,1994.
- 19)Bishop,C.T.,E.F.L.J.Anet and P.R.Gorham:Isolation and identification of the fast-death factor in *Microcystis aeruginosa* NRC-1.Can.J.Biochem.Physiol.,37,453-471(1959)
- 20)Konst,H.,Mckercher,P.D.,Gorham,P.R.,Roberson,A. and L.Howell:Symptoms and pathology produced by toxic *Microcystis aeruginosa* NRC-1 in laboratory and domestic animals,Can.J.Comp.Med.Vet.Sci.,28,1301-1309(1965)
- 21)Botes,D.P.,A.A.Tuinman,P.L.Wessels,C.C.Viljoen,H.Kruger,D.H.Williams,S.Santikarn,R.J.Smith and S.J.Hammond:The structure of cyanoginosin-LA, a cyclic hepatopeptide toxin from the cyanobacterium *Microcystis aeruginosa*,J.Chem.Soc.Perkin.Trans.,1,2311-2318(1984)
- 22)Botes,D.P., P.L.Wessels, H.Kruger, M.T.C.Runneger, S.Santikarn, R.J.Smith, J.C.J.Barna and D.H.williams : Structural studies on cyanoginosin-LA,-YR,-YA and -YM,peptitoxin from *Microcystis aeruginosa*, J.Chem.Soc.Perkin.Trans.,1,2747-2748(1985)
- 23)Kusmi,T., T.Ooi, M.M.Watanabe, H.Takahashi and H.Kakisawa : Cyanoviridin RR, a toxin from the cyanobacterium (blue-green algae), *Microcystis viridis*, Tetrahedr.Lett.,28,4695-4698(1987)
- 24)Ooi,T., Kusmi,T., Kakisawa,H. and Watanabe,M.M.:Structure of cyanoviridin RR, a toxin from the blue-green alga, *Microcystis viridis*,J.Appl.Phycol,1,31-38(1989)
- 25)Harada,K.,K.Ogawa,K.Matsuura,H.Nagai,H.Mirata,M.Suzuki,Y.ItezonoN.Nakayama, M.Shirai and M.Nakano:Isolation of two toxic hepatopeptide microcystins from an axenic strain of *Microcystis aeruginosa*,K-139,Toxicon.29,479-489(1991)
- 26)Namikoshi,M.,K.L.Rineheart,R.Sakai,R.R.Stotts,A.M.Dahlem,V.R.Beasley,W.W.Car michael and W.R.Evans:Identification of 12 hepatotoxins from a homer Lake bloom of the cyanobacteria *Microcystis aeruginosa*, *Microcystis viridis*, *Microcystis wesenbergii* : nine new microcystins,J.Org.Chem.,57,866-872(1992)
- 27)渡辺真利代 : 有毒藍藻の発生と毒素,海洋と生物,20(2),88-93(1998)

- 28) Lovell, R. A., D. J. Schaeffer, S. B. Hooser, W. M. Haschek, A. M. Dahlem, W. W. Carmichael and V. R. Beasley: Toxicity of intraperitoneal dose of microcystin-LR in two strains of male mice, *J. Environ. Pathol. Toxicol. Oncol.*, 9, 221-238 (1989)
- 29) Hooser, S. B., V. R. Beasley, R. A. Lovell, W. W. Carmichael and W. M. Haschek: Toxicity of microcystin-LR, a cyclic heptapeptide hepatotoxin from *Microcystis aeruginosa*, two rats and mice, *Vet. Pathol.*, 26, 246-252 (1989)
- 30) Falconer, I. R., J. V. Smith, A. R. Jacson, A. Jones and M. T. Runnegar: Oral toxicity of a bloom of the cyanobacterium *Microcystis aeruginosa* administered to mice over periods up to 1 year, *J. Toxicol. Environ. Health*, 24, 291-305 (1988)
- 31) Sugaya, Y., M. Yasuno and T. Yanai: Effect of toxic *Microcystis viridis* and isolated toxins on goldfish, *Jpn. J. Limnol.*, 51, 149-153 (1990)
- 32) Philips, M. J., R. J. Roberts, J. A. Stewart and G. A. Codd : The toxicity of the cyanobacterium *Microcystis aeruginosa* to rainbow trout, *Salmogairderi Richardson*, *J. Fish Dis.*, 8, 339-344 (1985)
- 33) Rabergh, C. M. I., G. Bylund and J. E. Eriksson: Histopathological effects of microcystin-LR, a cyclic peptide toxin from the cyanobacterium (blue-green alga) *Microcystis aeruginosa*, on common carp (*Cyprinus carpio* L.), *Aquat. Toxicol.*, 20, 131-145 (1991)
- 34) 花里孝幸 : 富栄養湖におけるラン藻と動物プランクトンの相互関係, *陸水雑誌*, 50, 53-67 (1989)
- 35) Fulton, R. S. III : Resistance to blue-green algal toxins by *Bosmina longirostris*, *J. Plankton Res.*, 10, 771-778 (1988)
- 36) Nizan, S., C. Dimentman and M. Shilo: Acute toxic effects of the cyanobacterium *Microcystis aeruginosa* on *Daphnia magna*, *Limnol. Oceanogr.*, 31, 497-502 (1984)
- 37) Starkweather, P. L. and P. E. Kellar: Combined influences of particulate and dissolved factors in the toxicity of *Microcystis aeruginosa* (NRC-SS-17) to the rotifer *Brachionus calyciflorus*, *Hydrobiologia*, 147, 375-378 (1987)
- 38) Ransom, R. E., T. A. Nerad and P. G. Meier: Acute toxicity of some blue-green algae to the protozoan *Paramecium caudatum*, *J. Phycol.*, 14, 114-116 (1978)
- 39) Caird, J. M.: Algae growth greatly reduced after stocking pond with fish, *Water works Eng.*, 98, 240 (1945)
- 40) Hrbáček, J., Dvoráková, M., Korínek, V. and Procházková, L.: Demonstration of the effect of fish stock on the species composition of zooplankton and the intensity of metabolism of the whole plankton association, *Verh. Int. Verein. Limnol.*, 14, 192-195 (1961)

- 41) Brooks, J.L. and Dodson, S.I. : predation, body size, and composition of plankton, *Science*, 150, 28-35 (1965)
- 42) Shapiro, J. and Wright, D.I. : Lake restoration by biomanipulation : Round Lake, Minnesota, the first two years, *Freshwat. Biol.*, 14, 371-383 (1984)
- 43) Lynch, M.: Predation, competition, and zooplankton community structure : An experimental study, *Limnol. Oceanogr.*, 24, 253-272 (1979)
- 44) Lynch, M. and Shapiro, J.: Predation, enrichment, and phytoplankton community structure, *Limnol. Oceanogr.*, 26, 86-102 (1981)
- 45) Carpenter, S.R., Kitchell, J.F., Hodgson, J.R., Cochran, P.A., Elser, J.J., Elser, M.M., Lodge, D.M., Kretchmer, D., He, X. and von Ende, C.N.: Regulation of lake primary productivity by food web structure, *Ecology*, 68, 1863-1876 (1987)
- 46) Lyche, A., Faafeng, B.A. and Brabrand, Å.: Predictability and possible mechanisms of plankton response to reduction of planktivorous fish, *Hydrobiologia*, 200/201, 251-261 (1990)
- 47) Søndergaard, M., Jeppsen, E., Mortensen, E., Dall, E., Kristensen, P. and Sortkjær : Phytoplankton biomass reduction after planktivorous fish reduction in a shallow, eutrophic lake: a combined effect of reduced internal P-loading and increased zooplankton grazing, *Hydrobiologia*, 200/201, 229-240 (1990)
- 48) Reinertsen, H., Jensen, A., Koksvik, J.I., Langeland, A. and Olsen, Y.: Effects of fish removal on the limnetic ecosystem of a eutrophic lake, *Can. J. Fish. Aquat. Sci.*, 47, 166-173 (1990)
- 49) Donk, E.V., Grimm, M.P., Gulati, R.D., Heuts, P.G.M., Kloet, W.A. and Liere, L. : First attempt to apply whole-lake food-web manipulation on a large scale in The Netherlands, *Hydrobiologia*, 200/201, 291-301 (1990)
- 50) Sanni, S. and Wærvågen, S.B.: Oligotrophication as a result of planktivorous fish removal with rotenone in the small, eutrophic, Lake Mosvatn, Norway, *Hydrobiologia*, 200/201, 263-274 (1990)
- 51) Gulati, R.D. : Structural and grazing responses of zooplankton community to biomanipulation of some Dutch water bodies, *Hydrobiologia*, 200/201, 99-118 (1990)
- 52) Benndorf, J., Schults, H., Benndorf, A., Unger, R., Penz, E., Kneschke, H., Kassatz, K., Dumkè, R., Horing, U., Kruspe, R. and Reichel, S.: Food-web manipulation by enhancement of piscivorous fish stock: Long-term effects in the hypertrophic Bautzen Reservoir, *Limnologica*, 19, 97-111 (1988)
- 53) Nakamoto, N. and Okino, T.: Activity of phytoplankton extracted by fish, *Bull Plankton Soc. Japan*, 19(1), 1-4 (1972)

- 54)Sugiura, N., Inamori, Y., Sudo, R., Oouchiyama, T. and Miyoshi, Y.: Degradation of blue green alga, *Microcystis aeruginosa* by flagellata, *Monas guttula*, Environ.Technol.,11, 739-746(1990)
- 55)Sugiura, N., Inamori, Y., Ichijo, G. and Sudo, R.:A flagellate, *Monas guttula* degradable *Microcystis* species, Jpn. J. Wat. Works Assoc.,60,2-9(1991)
- 56)Sugiura,N.,Inamori,Y.,Sudo,R.,Miyoshi,Y.:Effects of physicochemical factors on graze and decomposition of blue green alga, *Microcystis aeruginosa* by Mastigophra, *Monas guttula*, Jpn.J.Wat.Treat.Biol., 27(1), 111-116(1991)
- 57)Sugiura,N., Inamori,Y., Ouchiyama,T., Sudo,R. : Degradation of cyanobacteria *Microcystis* by Microflagellate, *Monas guttula*, Wat.Sci.Technol., 26(9-11), 2173-2176(1992)
- 58)Inamori, Y.,Hayashi,N. and Sudo,R.: Experimental studies on the role of smaller animals with regard to the degradation of Aoko,Jpn.J.Wat.Treat.Biol.,24(1),59-69(1988)
- 59)Inamori, Y., Ohno, Y., Kaya, K., Watanabe, M.M. and Sudo, R. :Degradation and removal method of toxins from *Microcystis viridis* for water supply using biofilm process,Jap. J. Wat. Poll. Res. ,13, 525-530(1990)
- 60)稲森悠平: 生物膜処理における微小動物の働き,水, 10, 24-31(1991)
- 61)Arnold,D.E.:Ingestion,assimilation,survival,and reproduction by *Daphnia pulex* fed seven species of blue-green algae,Limnol.Oceanogr.,16,906-920(1971)
- 62)Porter,K.G.:A method for the in situ study of zooplankton grazing effects on algal species composition and standing crop, Limnol.Oceanogr.,17,913-917(1972)
- 63)Tilman, D.:Resource competition between planktonic algae: An experimental and theoretical approach, Ecology,58,338 348(1977)
- 64)Olsen , Y . , Vadstein , O . , Andersen ,T. and Jensen , A. : Competition between *Staurastrum luetkemullerii* (chlorophyceae) and *Microcystis aeruginosa* (cyanophyceae) under varying modes of phosphate supply, J.Phycol. ,25,499-508(1989)
- 65)Suttle,C.A., Amy,M.C., Taylor,W.D. and Harrison,P.J.: Grazing of planktonic diatoms by microflagellates, Jour.Plankton Research, 8 (2), 393-398(1986)
- 66)須藤隆一 (編) :微生物生態学 I,微生物個体群の変動と相互作用,微生物学基礎講座 9,共立出版,東京(1985)
- 67)Shigesada,N. and Okubo,A.:Analysis of the self on algal vertical distribution in natural waters, J.Math.Biol.,12,311-326(1981)

- 68) Bowers, J.A.: Zooplankton Grazing in Simulation models: The role of vertical migration, in "Perspective on lake ecosystem modeling" (Ed. D. Scavia and A. Robertson), Ann Arbor Science, Michigan USA, 53-73(1979)
- 69) Jones, D.D. and Jost, M.: Isolation and chemical characterization of gas-vacuole membranes from *Microcystis aeruginosa* Kütz. emend. Elenkin, Arch. Microbiol., 70, 43-64(1970)
- 70) Reynolds, C.S.: Growth and buoyancy of *Microcystis aeruginosa* Kütz. emend. Elenkin in a shallow eutrophic lake, Proc. R. Soc. Lond. Ser., B184, 29-50(1973)
- 71) Reynolds, C.S.: Interrelations of photosynthetic behavior and buoyancy regulation in a natural population of blue-green algae, Freshwat. Biol., 5, 323-338(1975)
- 72) Reynolds, C.S. and Rogers, D.A.: Seasonal variations in the vertical distribution and buoyancy of *Microcystis aeruginosa* Kütz. emend. Elenkin in Rostherne Mere, England, Hydrobiologia, 48, 17-23(1976)
- 73) Humphries, S.E. and Lyne, V.D. : Cyanophyte blooms : The role of cell buoyancy, Limnol. Oceanogr., 33(1), 79-91(1988)
- 74) Geoge, D.C. and Edwards, R.W.: The effect of wind on the distribution of chlorophyll *a* and crustacean plankton in a shallow eutrophic reservoir, J. Appl. Ecology, 13, 667-690(1976)
- 75) 岡田光正, 須藤隆一: マイクロコズムシステムによる *Microcystis* の大量培養, 国立公害研究所研究報告, つくば, 25(1981)
- 76) Okada, M. and Sudo, R. : Microcosm system study of algal bloom formation, Jour. Wat. Pollu. Contr. Federa., 52, 1029-1034(1980)
- 77) 西条八束: クロロフィルの測定法, 陸水学雑誌, 36, 103(1975)
- 78) Watanabe, M.M. and Nozaki, H. 1994. NIES-Collection List of Strains Fourth Edition, Microalgae and Protozoa, National Institute for Environmental Studies, Tsukuba(1994)
- 79) 下水試験法, 日本下水道協会, 東京, 132-134(1984)
- 80) Geroff, G.C., Fitzgerald, G.P. and Skoog, F. : The mineral nutrition of *Microcystis aeruginosa*, Amer. J. Botany, 39, 26-39(1952)
- 81) 環境庁国立公害研究所研究報告: アオコの増殖及び分解に関する研究 - *Microcystis* の無菌株と単藻株の増殖特性 -, 92, 19-32(1986)
- 82) 福島武彦, 天野耕二, 村岡浩爾: 湖沼水質の簡易な予測モデル (2. 湖水栄養塩濃度と内部生産 COD, クロロフィル *a* との関係), 水質汚濁研究, 9, 775-785(1986)

- 83)田井慎吾,針生 晋,岡田光正,須藤隆一:富栄養化の評価ならびに制御指標の検討 (COD_{Mn}について) ,水処理技術,19,429-443(1987)
- 84)岩見徳雄,松重一夫,西川直仁,須藤隆一:有機性汚濁指標に及ぼす藻類の影響,水質汚濁学会講演集,仙台,25,194-195(1991)
- 85)渡辺信:アオコの毒性に関する研究の現状と課題,水質汚濁研究,12,750-756(1989)
- 86)Watanabe,M.M.,Zhang,X.,Kaya,K.: Fate of toxic cyclic heptapeptides, microcystins, in toxic cyanobacteria upon grazing by the mixotrophic flagellate *Poterioochromonas malhamensis* (Ochromonadales, Chrysophyceae) , *Phycologia*, 35 (6 Suppl.), 203-206(1996)
- 87)Cole G.T. and Wynne M.J.:Endocytosis of *Microcystis aeruginosa* by *Ochromonas danica*,*Jour.Phycol.*,10,397-410(1974)
- 88)Daley R.J.,Morris G.P. and Brown S.R.: Phagotrophic ingestion of a blue-green alga by *Ochromonas*,*Jour.Protozool.*,20,58-61(1973)
- 89)彼谷邦光:藍藻毒ミクロキスチン(Microcystin)の化学と毒性,環境化学,2(3),457-477(1992)
- 90)Hooser,S.B.,V.R.Beasley,R.A.Lovell,W.W.Carmichael and W.M.Haschek:Toxicity of microcystin-LR,a cyclic heptapeptide hepatotoxin from *Microcystis aeruginosa*,to rats and mice. *Vet.Pathol.*,26,246-252(1989)
- 91)Lovell,R.A.,D.J.Schaeffer,S.B.Hooser,W.M.Haschek,A.M.Dahlem,W.W.Carmichael and V.R.Beasley:Toxicity of intraperitoneal dose of microcystin-LR in two strains of male mice.*J. Environ. Pathol. Toxicol. Oncol.*,9,221-238(1989)
- 92)Kunimitsu Kaya,M.M.Watanabe:Microcystin composition of an axenic clonal strain of *Microcystis viridis* and *M.viridis*-containing waterblooms in Japanese freshwaters,*J. Appl. Phycol.*,2,173-178(1990)
- 93)Ohkubo,N., Yagi,O. and Okada,M. : Studies on the succession of blue-green algae, *Microcystis*, *Anabaena*, *Oscillatoria* and *Phormidium* in Lake Kasumigaura, *Environ. Technol.*,14,433-442(1993)
- 94)Takamura,N. and Watanabe,M.M.: NOTE Seasonal changes in the biomass of four species of *Microcystis* in Lake Kasumigaura,*Jpn.J.Limnol.*,48,S139-S144(1987)
- 95)Takahashi,M.,Nomura,I,Komatsu,M. and Ichimura,S.: Multi-regression analysis of *Microcystis* bloom with various environmental parameters in eutrophic Lake Kasumigaura.*Japan, Verh. Int. Verein. Limnol.*,21,659-663(1981)

- 96) Park, H.D., Watanabe, M.F., Harada, K.-I., Suzuki, M., Hayashi, H. and Okino, T.: Seasonal variations of *Microcystis* species and toxic heptapeptide microcystins in Lake Suwa, Environ. Toxicol. Wat. Qual., 8, 425-435 (1993)
- 97) Okino, T., Studies on the blooming of *Microcystis aeruginosa* I. Jap. Jr. Botany, 20(6). 381-402 (1973)
- 98) Gause, G.F.: Experimental studies on the struggle for existence. I. Mixed population of two species of yeast. J. Exp. Biol., 9, 389-402 (1932)
- 99) 吉成 暁: 有用微小動物のアオコ分解に果たす役割と微小動物間相互作用の機構解明, 修士学位論文, 東邦大学大学院理学研究科, 千葉 (1998)
- 100) Sherr, B.F. and Sherr, E.B.: The role of heterotrophic protozoa in carbon and energy flow in aquatic ecosystem, M.J. In Klug and C.A. Reddy (eds), Current perspectives in microbial ecology, Am. Soc. For Microbiol., Washington, 412-423 (1984)
- 101) Cambell, L. and Carpenter, E.J.: Estimating the grazing pressure of heterotrophic nanoplankton on *Synechococcus* spp. using the sea water dilution and selective inhibitor techniques, Mar. Ecol. Prog. Ser., 33, 121-129 (1986)
- 102) 宮崎 純: 多孔質セルロース担体を用いたアオコ分解法における微小動物の動態とアオコ分解効果に関する研究, 学士論文, 東邦大学理学部, 千葉 (1994)
- 103) Shapiro, J.: Blue-green algae: Why they become dominant, Science, 179, 382-384 (1973)
- 104) Scheffer, M.: Fish and nutrients interplay determines algal biomass: A minimal model, Oikos, 62 271-282 (1991)
- 105) Scheffer, M.: Alternative stable in eutrophic, shallow freshwater systems: A minimal model, Hydrological bulletin, 23, 73-83 (1989)
- 106) Scheffer, M. and Beets, J.: Ecological models and the pitfalls of casualy, Hydrobiologia, 275/276, 115-124 (1994)
- 107) Jayaweera, M. and Asaeda, T.: Modeling of biomanipulation in shallow, eutrophic lakes: An application to Lake Bleiswijkse Zoom, the Netherlands, Ecological Modeling, 85, 113-127 (1996)
- 108) 浅枝 隆: バイオマニピュレーションの数理解析, 水環境学会誌, 22(1), 8-12 (1999)