

caudata และ *Vorticella convallaria*, (2) class Mastigophora 36 species คือ *Anisonema acinus*, *Chilomonas paramecium*, *Chlamydomonas* sp., *Entosiphon ovatum*, *Euglena acus*, *E. deses*, *E. enrenbergi*, *E. gracilis*, *E. klebsi*, *E. oxyuris*, *E. spirogyra*, *E. tripteris*, *Euglena* sp. 1, *Euglena* sp. 2, *Euglena* sp. 3, *Euglena* sp. 4, *Gonium pactorale*, *Gymnodinium aeruginosum*, *Heteronema acus*, *Pandorina morum*, *Paranema trichophorum*, *Phacus acuminata*, *P. longicauda*, *P. pleuronectes*, *P. pyrum*, *P. torta*, *Phacus* sp., *Spondylomorum quaternarium*, *Synura uvella*, *Trachelomonas armata*, *T. hispida*, *Trachelomonas* sp.1, *Trachelomonas* sp.2, *Trachelomonas* sp.3, *Trachelomonas* sp. 4 และ *Trachelomonas* sp. 5 (3) class Sarcodina 24 species คือ *Actinophrys sol*, *Actinosphaerium* sp., *Amoeba dubia*, *A. guttula*, *A. limicola*, *A. proteus*, *A. radiosa*, *A. spumosa*, *A. striata*, *A. verrucosa*, *A. vespertilio*, *Arcella dentata*, *A. discoides*, *A. vulgaris*, *Arcella* sp.1, *Arcella* sp. 2, *Centropyxis aculeata*, *Centropyxis* sp., *Diffugia corona*, *D. oblonga*, *D. ucerolata*, *Heleopera pertricola*, *Paulinella* sp. และ *Pelomyxa* sp. (4) class Suctoria 3 species คือ *Acineta lacustris*, *Podophrya fixa* และ *Tokophrya cyclosum* โปรโตซัวทั้ง 3 class คือ class Ciliata, class Mastigophora และ class Sarcodina พบว่าโปรโตซัวมีการกระจายตัวคล้ายกันทั้ง 3 station ทุกเดือน ในรอบ 12 เดือน แต่ class Suctoria มีการกระจายเพียง station ที่ 2 และ station ที่ 3 เท่านั้น ค่า BOD (14-24.40 mg/l), ค่า DO (0.1-8.50 mg/l), ค่า pH (5.45-8.48), total Fe (0.09-3.52 mg/l), คลอไรด์ (0.20-8.80 mg/l) และ NH₃-N (0.2-1.53 mg/l) ไม่มีความแตกต่างกันอย่างมีนัยสำคัญทั้ง 3 station ตลอด 12 เดือน สำหรับโปรโตซัวที่พบเฉพาะในน้ำเสียที่จะใช้เป็น biomonitoring บ่งบอกคุณภาพน้ำเสียประเภทที่ 5 (ตามประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติฉบับที่ 8 พ.ศ. 2537) ได้มี 21 species ประกอบด้วย (1) class Ciliata 8 species คือ *Aspidisca lynceus*, *Chilodonella cucullulus*, *Cristigera phoenix*, *Cyclidium glaucoma*, *Euplotes adiculatus*, *Holostricha vernalis*, *Paramecium multimicronucleatum*, *Prorodon griseus* (2) class Mastigophora 10 species คือ *Chlamydomonas* sp., *Euglena enrenbergi*, *E. spirogyra*, *E. tripteris*, *Gymnodinium aeruginosum*, *Heteronema acus*, *Pandorina morum*, *Phacus torta*, *Spondylomorum quaternarium* และ *Trachelomonas*

armata (3) class Sarcodina 3 species คือ *Centropyxis aculeata*, *Diffugia corona* และ *D. oblonga* การศึกษาเพิ่มเติมจำเป็นอย่างยิ่งเพื่อจะตอบคำถามได้ว่า โปรโตซัว 21 ชนิดดังกล่าวข้างในเป็น bioindicator ปบบอกคุณภาพน้ำได้หรือไม่

มหาวิทยาลัยเชียงใหม่
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Thesis Title	Diversity of Protozoa and Water Quality in Mae-Kha Canal, Chiang Mai Province		
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Abstract

The diversity of protozoa and water quality in Mae-Kha Canal, Chiang Mai Province was investigated during December 1997 – November 1998 from three stations, viz. (above, in, and below the city) 104 species of protozoa were recorded in 4 classes. There were 41 species in class Ciliata, viz. *Amphileptus claparedei*, *Aspidisca lynceus*, *Chilodonella cucullulus*, *C. uncinata*, *Cinetochilum margaritacum*, *Coleps elongatus*, *C. hirtus*, *Colpidium campylum*, *Cristigera phoenix*, *Cyclidium glaucoma*, *Drepanomonas dentata*, *Euplotes adiculatus*, *E. eurytomus*, *E. patella*, *Euplotes* sp., *Gastrostyla muscorum*, *Halteria grandinella*, *Holostricha vernalis*, *Lacrymaria* sp., *Leptopharynx* sp., *Litonotus fasciola*, *Loxocephalus plagilus*, *Loxodes magnus*, *Onychodromopsis flexilis*, *Oxytricha fallex*, *Paramecium aurelia*, *P. caudatum*, *P. multimicronucleatum*, *Prorodon griseus*, *Prorodon* sp., *Spirostomum ambiguum*, *S. intermedium*, *S. minus*, *Stentor coeruleus*, *S. polymorphus*, *Stylonychia mytilus*,

Tetrahymena pyliformis, *Trachelophyllum clavatum*, *Urocentrum turbo*, *Urosoma caudata* and *Vorticella convallaria*. There were thirty-six species of class Mastigophora : *Anisonema acinus*, *Chilomonas paramecium*, *Chlamydomonas* sp., *Entosiphon ovatum*, *Euglena acus*, *E. deses*, *E. enrenbergi*, *E. gracilis*, *E. klebsi*, *E. oxyuris*, *E. spirogyra*, *E. tripteris*, *Euglena* sp. 1, *Euglena* sp. 2, *Euglena* sp. 3, *Euglena* sp. 4, *Gonium pactorale*, *Gymnodinium aeruginosum*, *Heteronema acus*, *Pandorina morum*, *Paranema trichophorum*, *Phacus acuminata*, *P. longicauda*, *P. pleuronectes*, *P. pyrum*, *P. torta*, *Phacus* sp., *Spondylomorom quaternarium*, *Synura uvella*, *Trachelomonas armata*, *T. hispida*, *Trachelomonas* sp.1, *Trachelomonas* sp. 2, *Trachelomonas* sp. 3, *Trachelomonas* sp. 4 and *Trachelomonas* sp. 5. In addition there were twenty-four species of class Sarcodina ; *Actinophrys sol*, *Actinosphaerium* sp., *Amoeba dubia*, *A. guttula*, *A. limicola*, *A. proteus*, *A. radiosa*, *A. spumosa*, *A. striata*, *A. verrucosa*, *A. vespertilio*, *Arcella dentata*, *A. discoides*, *A. vulgaris*, *Arcella* sp. 1, *Arcella* sp. 2, *Centropyxis aculerta*, *Centropyxis* sp., *Diffugia corona*, *D. oblonga*, *D. ucerolata*, *Heleopera pertricola*, *Paulinella* sp. and *Pelomyxa* sp. Lastly three species of class Suctoria occurred : *Acineta lacustris*, *Podophrya fixa*, and *Tokophrya cyclopum*.

It was found that protozoan species did not differ in distribution at the 3 stations (class Ciliata, class Mastigophora and class Sarcodina) for 12 months, but Class Suctoria was recovered from station 2 and station 3. Values were recorded for the BOD (14-24.40 mg/l), DO (0.1-8.50 mg/l), pH (5.45-8.48), total Fe (0.09-3.52 mg/l), chloride (0.20-8.80 mg/l), and NH₃-N (0.2-1.53 mg/l). These values were not significantly different between the 3 collection stations over the 12 months. The following species in three classes of protozoa can be used for biomonitoring indicators (Thai Water Pollution Standard level 5) : eight species of class Ciliata : *Aspidisca lynceus*, *Chilodonella cucullulus*, *Cristigera phoenix*, *Cyclidium glaucoma*, *Euplotes adiculatus*, *Holostricha vernalis*, *Paramecium multimicronucleatum* and *Prorodon griseus*. Ten species of class Mastigophora ; *Chlamydomonas* sp., *Euglena enrenbergi*, *E. spirogyra*, *E. tripteris*,

Gymnodinium aeruginosum, *Heteronema acus*, *Pandorina morum*, *Phacus torta*, *Spondylomorom quaternarium* and *Trachelomonas armata*. There are three species of class Sarcodina : *Centropyxis aculeata*, *Diffugia corona*, and *D. oblonga*. Further investigations are needed to answer the question of whether or not these species of protozoa can be used for bioindicators of polluted water throughout Thailand.