



New taxa of *Monomorphina* and *Phacus* (Euglenophyta) for Northern Thailand



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Introduction

Among Euglenophytes, *Monomorphina* Mereschkowsky and *Phacus* Dujardin genera are reported as very common. Recently around 130 taxa of *Phacus* and 8 taxa of *Monomorphina* are known worldwide. Usually they are classified as taxa that grow well in moderately polluted waters and most of them are used as indicators of water pollution. The information about the occurrence of *Phacus* and *Monomorphina* in Thailand are still scarce. The aim of this study was to check the biodiversity level of the mentioned genera representants, and which type of water bodies and qualities of water they prefer.



Fig 2-5 Different sampling sites: 2. Garden pond, 3. Reservoir, 4. Fish pond and 5. Ditch

Methods

The samples were collected during April 2009 and March 2010 in some water resources of Chiang Mai, Chiang Rai, Lampun, Lampang and Phayao Provinces. Water qualities, such as pH, conductivity and nutrients were determined. The trophic status of water was classified by AARL PC-Score.

Results

Sixty four *Phacus* and two *Monomorphina* taxa were found in 31 sites of different water bodies. Among them *Ph.acuminatus* Stokes, *Ph.orbicularis* Hübner, *Ph.longicauda* (Ehrenberg) Dujardin, *Ph.ranula* Pochmann, *Ph.platyaulax* Pochmann and *Ph.pleuronectes* (O.F.Müller) Dujardin, *Ph.salina* (Fritsch) Linton et Karnowska and *Ph.triqueter* (Ehrenberg) Dujardin occurred in most of the studied sites. Among those, thirty-one of *Phacus* taxa and two taxa of *Monomorphina* are new records for Thailand (Fig.6,7). We recognized several problematic varieties of *Ph.acuminatus*, *Ph.longicauda*, *Ph.orbicularis* and *Ph.pleuronectes*, and two groups of similar taxa: *Ph.monilatus*, *Ph.hispidulus*, *Ph.horridus* and *Ph.contortus*, *Ph.alatus* and *Ph.platyaulax* which need to be examined in molecular studies.

The water qualities in all sampling sites were classified as oligotrophic-mesotrophic to hypereutrophic status. The *Phacus* spp. mostly occurs in mesotrophic waters, which was confirmed by this study. Moreover, the blooming of *Phacus* such as *Phacus triqueter* (Ehrenberg) Dujardin in the garden pond with Lotus flowers at the Faculty of Agriculture, Chiang Mai University was also observed.

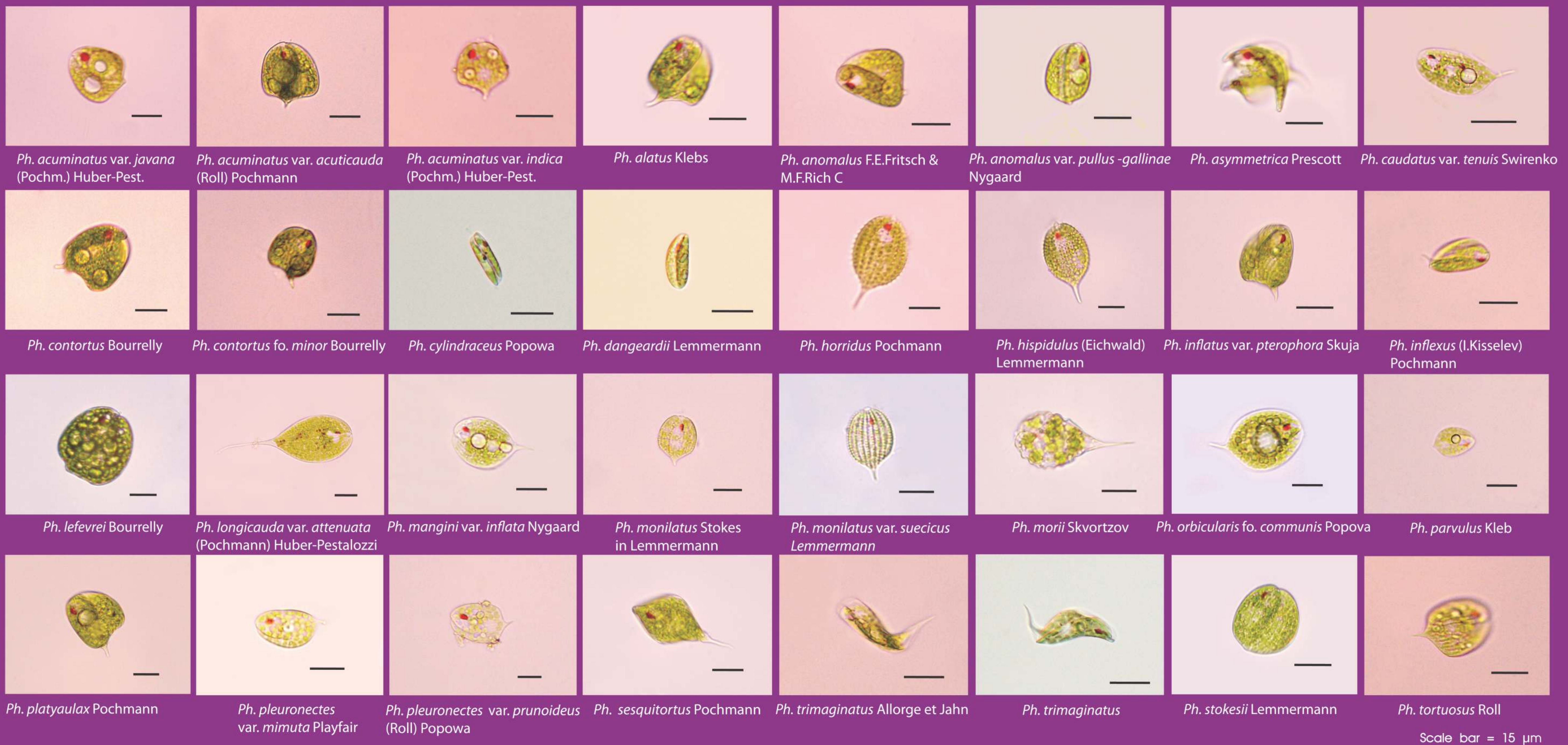


Fig. 6 Thirty-one *Phacus* taxa as new records for Thailand

Conclusions

We conclude that the representants of *Phacus* (Euglenophyceae) are important organisms which can be used together with other algae taxa as indicators of water pollution. Our study confirmed that mesotrophic water bodies are the good habitats for development of *Phacus* taxa in tropical countries. These data are valuable for identification of *Phacus* for all laboratories workers in sanitary stations and freshwater treatments.

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Fig.7 *Monomorphina* Mereschkowsky: a,b) *M.pyrum* (Ehrenberg) Mereschkowsky; c,d) *M.pseudopyrum* S.Komala, R.Milanowski, K.Brzoska, M.Pekala, J.Kwitowski & B.Zakrys