

SCALE-BEARING CHRYSOPHYTES FROM THE STATE OF SÃO PAULO, BRAZIL, 2: ADDITIONS TO THE FLORA

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(With 5 figures)

INTRODUCTION

Studies on silica-scaled chrysophytes (Chrysophyceae and Synurophyceae) using electron microscopy have resulted in an extensive list of taxa being reported from Brazil (Cronberg & Hickel, 1985; Cronberg, 1989; Franceschini & Couté, 1991; Wujek & Bicudo, 1993; Franceschini *et al.*, 1996a, b; Couté & Franceschini, 1998; Kristiansen & Menezes, 1998). These are similar to taxa reported from Argentina by Vigna and her co-workers (Vigna, 1979, 1981, 1984, 1986, 1988a, b, 1990, 1991, 1993; Kristiansen & Vigna, 1994; Vigna & Kristiansen, 1989, 1995a, b, 1996, 2002; Siver & Vigna, 1996, 1997), from Chile by Dürrschmidt (1980, 1981, 1982a, b, 1983a, b, c), and from Colombia (Vigna & Escobar, 1999).

The species presented here, and adding to our knowledge of their global distribution, are new records for Brazil.

MATERIAL AND METHODS

Samples were collected from two different localities in São Paulo State: Parque Estadual das Fontes do Ipiranga (*hidrofitotério*, Lago das Garças, and Lago das Ninféias), located in the metropolitan area of the city of São Paulo, and the Reserva Biológica de Mogi-Guaçu (Açude da Capivara e Açude do Jacaré), in the interior of the of São Paulo State, about 136 km in a straight line NNW from the city of São Paulo.

Samples were prepared as previously described (Wujek & Bicudo, 1993). Some observations were made with a Philips CM10 TEM.

RESULTS AND DISCUSSION

During reexamination of previously collected phytoplankton samples and examination of several additional samples, four silica-scaled chrysophytes and one taxon of uncertain taxonomic placement not previously reported from Brazil were observed (Figs. 1-5; Table 1).

Taxonomic comments on species found:

Mallomonas multisetigera Dürrschmidt (Fig. 1)

Since the original description from Chile (Dürrschmidt, 1980), this has been shown to be a widely distributed, cosmopolitan species. The only other previous report from South America is from Argentina (Vigna & Kristiansen, 1996).

Mallomonas pillula Harris var. *valdiviana* Dürrschmidt (Fig. 2)

Described originally from Chile (Dürrschmidt, 1982b), it has been recorded from a number of other locations worldwide, including Argentina (Vigna & Kristiansen, 1996).

Mallomonas prora Dürrschmidt (Fig. 3)

This is the second report from South America. Besides the original description from Chile (Dürrschmidt, 1982a), it has previously been reported only from the Netherlands (Roijackers & Kessels, 1986), Germany (Hickel & Maaß, 1989), and the southern United States (Wee *et al.*, 1993).

Chrysosphaerella coronacircumspina Wujek & Kristiansen (Fig. 4)

Since the description from northern Michigan, USA, it has been shown to be a widely distributed species. The only other reports from South America are from Argentina (Vigna, 1988a) and Colombia (Vigna & Escobar, 1999).

TABLE 1
**Silica-scaled chrysophytes from the state of São Paulo, Brazil (see Wujek & Bicudo 1993
for date and physiochemical data).**

Taxon	Location
Synurophyceae	
<i>Mallomonas multisetigera</i> Dürrschmidt	Hidrofitotério
<i>Mallomonas pillula</i> Harris var. <i>valdiviana</i> Dürrschmidt	Lago das Ninféias
<i>Mallomonas prora</i> Dürrschmidt	Açude da Capivara
Chrysophyceae	
<i>Chrysosphaerella coronacircumspina</i> Wujek & Kristiansen	Lago das Ninféias
Insertae sedis	
<i>Gyromitus disomatus</i> Skuja	Lago das Garças

Incertae sedis

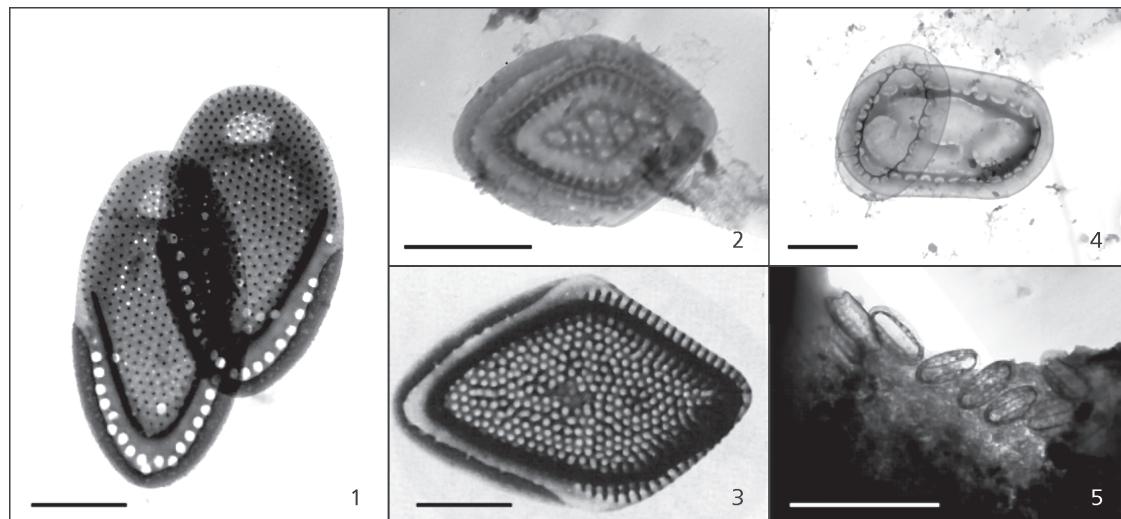
Gyromitus disomatus Skuja (Fig. 5)

Probably a free-living amoeba, it has been reported previously from two South American locations: Chile (Dürrschmidt, 1982a) and Argentina (Vigna, 1988b).

This organism has no obvious affinities with any taxonomic group (Swale & Belcher, 1974). Nicholls (1979), using X-ray emission spectra, has demonstrated that the scales are composed of silica

and are not calcified, thus this organism does not represent coccoliths.

The composition of Brazilian chrysophyte flora shows a great similarity to the flora of the neighboring countries of Argentina and Chile. Further investigations will certainly show the presence of a more diverse flora and contribute to our understanding of the biogeographical distribution of this group of organisms. Silica-scaled chrysophytes found in Brazil based on electron microscopy now comprise 69 taxa.



Figs. 1-3 — *Mallomonas*. 1. *M. multisetigera* Dürrschmidt. 2. *M. pillula* Harris var. *valdiviana* Dürrschmidt. 3. *M. prora* Dürrschmidt.
Fig. 4 — *Chrysosphaerella coronacircumspina* Wujek & Kristiansen. **Fig. 5** — *Gyromitus disomatus* Skuja. Scale bar = 1 µm.

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