

TRANSFER OF *ACHNANTHES LOOSERI* FRENGUELLI TO THE GENUS
PLANOETHIDIUM

TRASLADO DE *ACHNANTHES LOOSERI* FRENGUELLI AL GENERO
PLANOETHIDIUM

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RESUMEN

Se estudió el material tipo de *Achnanthes looseri* Frenguelli mediante técnicas de microscopía fotónica y electrónica de barrido. Se propone el traslado de la especie al género *Planolithidium*. Se designa el lectotipo y se entrega una diagnosis corregida del taxón.

In 1930, Frenguelli described the species *Achnanthes looseri* based on material collected in Calama, Chile. This taxon, dedicated to the Chilean fern specialist, Gualterio Looser, was characterized as follows: "Valvas de contornos elípticos, con extremos anchamente capitados; con estrías en número de 10 mm. 0,01, radiantes, largo mm. 0,30 a 0,39, ancho mm. 0,011 a 0,012. Valva superior con área axial angosta, dilatada en forma de faja transversal ancha, especialmente sobre un costado, donde alcanza el borde valvar por ausencia de las estrías correspondientes o por un notable acortamiento de las mismas; sobre el costado opuesto esta área transversal es más reducida o falta completamente. Valva inferior muy parecida a la superior y, como ésta, con un área axial muy angosta y dilatada transversalmente en el medio, en correspondencias de un notable acortamiento de las estrías medianas de ambos costados". Three drawings of the taxon accompanied his description (Fig. 1).

We analyzed one of the five slides of this material deposited in the Frenguelli Collection, Museo de Ciencias Naturales, La Plata, Argentina, obtaining light microscopy photographs of the species (Zeiss Photomicroscope III). Furthermore, clean, non-mounted type material was used for the first time to examine more than 80 valves under a scanning electron microscope (Jeol JSM-6380LV). We were not able to obtain information about the girdle structure. Due to the variability found in some morphological valve features, we present an emended diagnosis of the species. The morphological features of *Achnanthes looseri* Frenguelli are, at present, recognised to be characteristics of the genus *Planolithidium* (Round & Bukhtiyarova 1996: basically small cells, slightly curved in girdle view; bi- or multiseriate striae; horseshoe-shaped structure on one side of the rapheless valve), and we propose its transfer to this genus. Because Frenguelli did not designate a holotype slide from his material, we have selected a lectotype.

Planothidium looseri (Frenguelli) Rivera & Cruces, nov. comb. Fig. 2

Basionym: *Achnanthes looseri* Frenguelli 1930, Revista Chilena de Historia Natural 34:198, fig. 35-1.

Lectotype: Calama, Chile, on slide number 3 of 5, Frenguelli Collection, Museo de Ciencias Naturales, La Plata, Argentina, designated herein.

Isotypes: DIAT-CONC 7165, 7166, 7167, Diatom Collection, Universidad de Concepción, Concepción, Chile.

Type locality: Calama, Antofagasta Province, Chile, Leg. Mr. Miguel Machado, 22°28'S-68°56'W.

EMENDED DIAGNOSIS:

The valves are elliptical in outline with widely capitate (Figs. a-f) or sometimes broadly subcapitate ends (Fig. g). Cells 20-36 μm in length and 7.5-11 μm in breadth. The raphe valve has a narrow sternum (Figs. a-d) that becomes slowly wider towards the butterfly-shaped central area

(Figs. c-d), sometimes with one side being wider (Fig. c), extending across approximately three-quarters of the breadth of the valve; very short marginal striae in the central area (Figs. a-d) or missing from one side; externally, the proximal ends of the raphe are expanded and the terminal ends curve in the same direction (Fig. c). The rapheless valve has a sternum similar to that present in the raphe valve, a distinctly one-sided "hoof-mark" central depression, and sometimes 1-2(3) shorter striae on the opposite side (Figs. e-g). The striae on both valves are bi- (Fig. h) or multiseriata (Fig. i) and they radiate (Figs. a-g) nearly become parallel at the centre of the valve (Figs. e-f), 10-12 in 10 μm at the centre and 13-15 in 10 μm at the ends.

Planothidium looseri has only been reported at Chilean sites. In addition to the type locality, the species was also reported by Frenguelli 1934 at Trípoli de San Pedro de Atacama, Antofagasta Province, Chile, 23°20'S-68°25'W. We do not know of any other reports of this species, except that of Frenguelli 1935, in which the new variety *Achnanthes looseri* var. *lanceolata*, from Isla Cailín, Chiloé, Chile (43°10'S-73°33'W) was described; a detailed study of this taxon is required to verify its real identity.

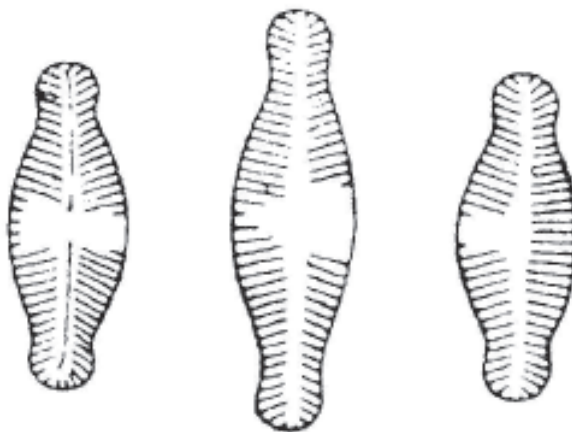


FIGURE 1. *Achnanthes (Microneis) looseri* Frenguelli. Original drawings (Figure 35-1) of Frenguelli 1930.

FIGURA 1. *Achnanthes (Microneis) looseri* Frenguelli. Dibujos originales (Figura 35-1) de Frenguelli 1930.

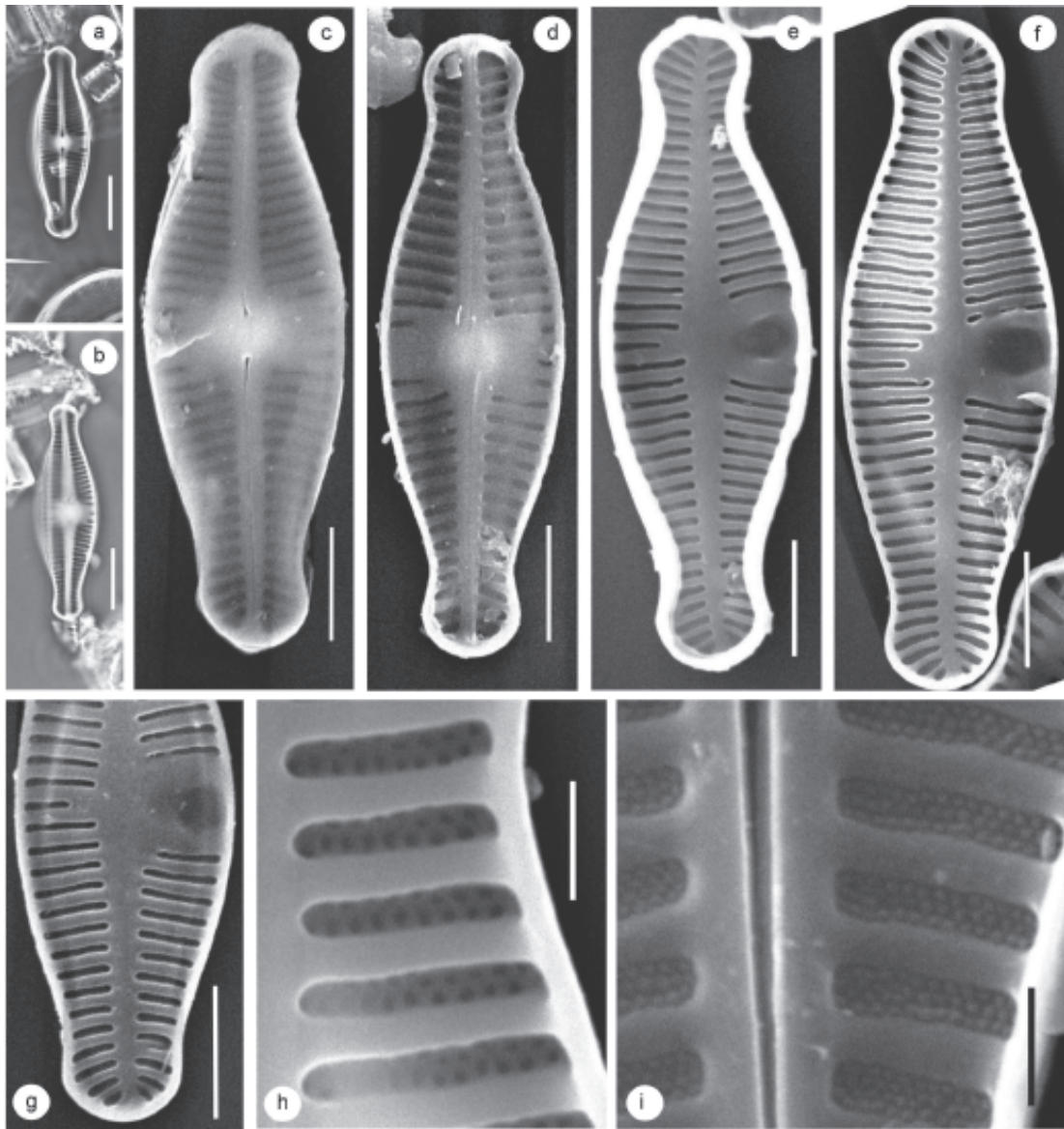


FIGURE 2. *Planothidium looseri* (Frenguelli) Rivera & Cruces, nov. comb. Figs. a-b, LM, lectotype. Figs. c-i, SEM, type material. (a-b) Raphe valves with capitulate ends. (c) External view of raphe valve; butterfly-shaped central area with short marginal striae. (d) Internal view of raphe valve; narrow sternum and radiate striae. (e-f) Internal views of rapheless valves; note the marginal central depression; radiate striae throughout becoming parallel at the centre, with one (Fig. e) or two (Fig. f) shorter striae at the centre of the valves. (g) Valve with subcapitate ends and one short stria opposite the marginal central depression. (h) Internal view of a valve with biseriata striae. (i) Internal view of valve with multiseriata striae. Scales: a-b = 10 μ m, c-g = 5 μ m, h-i = 1 μ m.

FIGURA 2. *Planothidium looseri* (Frenguelli) Rivera & Cruces, nov. comb. Figs. a-b, LM, lectotipo. Figs. c-i, SEM, material tipo. (a-b) Valvas con rafe y extremos capitados. (c) Vista externa de valva con rafe; área central con forma de mariposa y con estrías marginales cortas. (d) Vista interna de valva con rafe; sternum angosto y estrías radiales. (e-f) Vistas internas de valvas sin rafe; note la depresión central marginal; estrías radiales llegando a ser paralelas en el centro, con una (Fig. e) o dos (Fig. f) estrías más cortas en el centro de las valvas. (g) Valva con extremos subcapitados y una corta estría opuesta a la depresión central marginal. (h) Vista interna de valva con estrías biseriadas. (i) Vista interna de valva con estrías multiseriadas. Escalas: a-b = 10 μ m, c-g = 5 μ m, h-i = 1 μ m.

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REFERENCES

- FRENGUELLI, J. 1930. Diatomeas contenidas en una muestra de trípoli de Calama, en Chile. *Revista Chilena de Historia Natural* 34: 195-199.
- FRENGUELLI, J. 1934. Diatomeas del trípoli de San Pedro de Atacama. *Revista Chilena de Historia Natural* 38: 159-163.
- FRENGUELLI, J. 1935. Análisis diatomológicos de trípulis chilenos. *Revista Chilena de Historia Natural* 39: 147-152.
- ROUND, F.E. & L. BUKHTIYAROVA. 1996. Four new genera based on *Achnanthes* (*Achnanthidium*) together with a re-definition of *Achnanthidium*. *Diatom Research* 11(2): 345-361.

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