Sphenomonas quadrangularis Stein, 1878

Most likely ID: n.a.

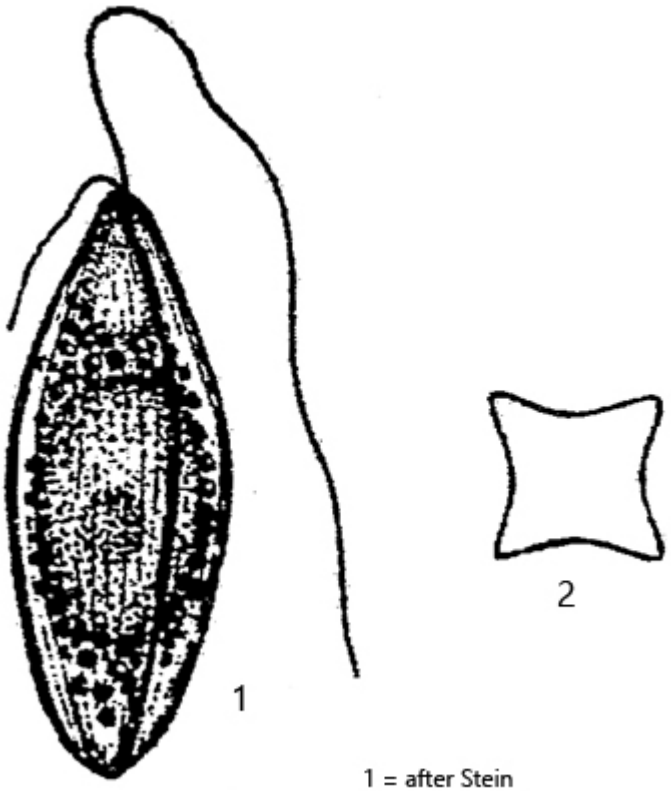
Synonym: n.a.

Sampling location: Simmelried

Phylogenetic tree: *Sphenomonas quadrangularis*

Diagnosis:

- cell spindle-shaped, rigid with 4 distinct longitudinal ridges
- cell in cross-section almost square
- length about 30 µm
- locomotion flagellum about twice of body length
- trailing flagellum short, about 10 µm long
- nucleus central
- a hyaline, gelatinous body in posterior half



Sphenomonas quadrangularis

I have found *Sphenomonas quadrangularis* so far only in the Simmelried, where the species occurs, however, only sporadically. *Sphenomonas quadrangularis* can be identified by the 4 straight, longitudinal ridges, which are arranged in perpendicular lines in optical cross-section (s. fig. 4 d). In addition, *Sphenomonas quandrangularis* is conspicuous by a hyaline, gelatinous body, mostly localized in the posterior half of the body. This hyaline body has already aroused the interest of the first observers. It is insoluble in both alcohol and ether (i.e. no oil or fat). In water, sodium hydroxide and ammonia the body swells but does not dissolve. It is thought to be a high molecular weight reserve material of unknown nature. *Sphenomonas quadrangularis* has two flagella. The flagellum used for locomotion can reach twice body length (s. figs. 2 b, 2 c and 3 a-b). The trailing flagellum, on the other hand, is very short and is often overlooked, especially when it is close to the body between the longitudinal ribs (s. figs. 2 c and 3 a).

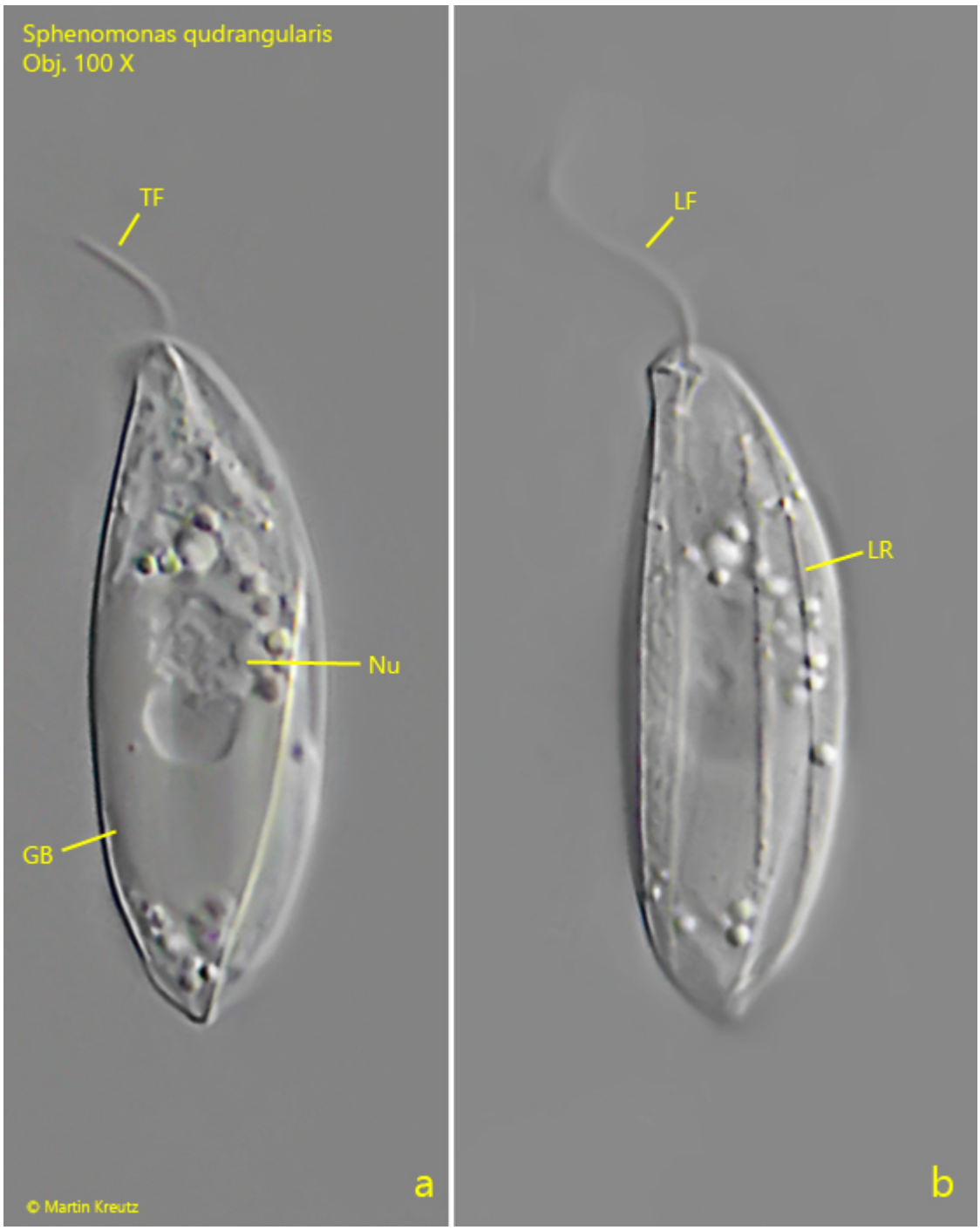


Fig. 1 a-b: *Sphenomonas quadrangularis*. L = 28 µm. Two focal planes of a freely swimming specimen. Note the hyaline, gelatinous body (GB) in the posterior half. LF = locomotion flagellum, LR = longitudinale ridges, Nu = nucleus, TF = trailing flagellum. Obj. 100 X.

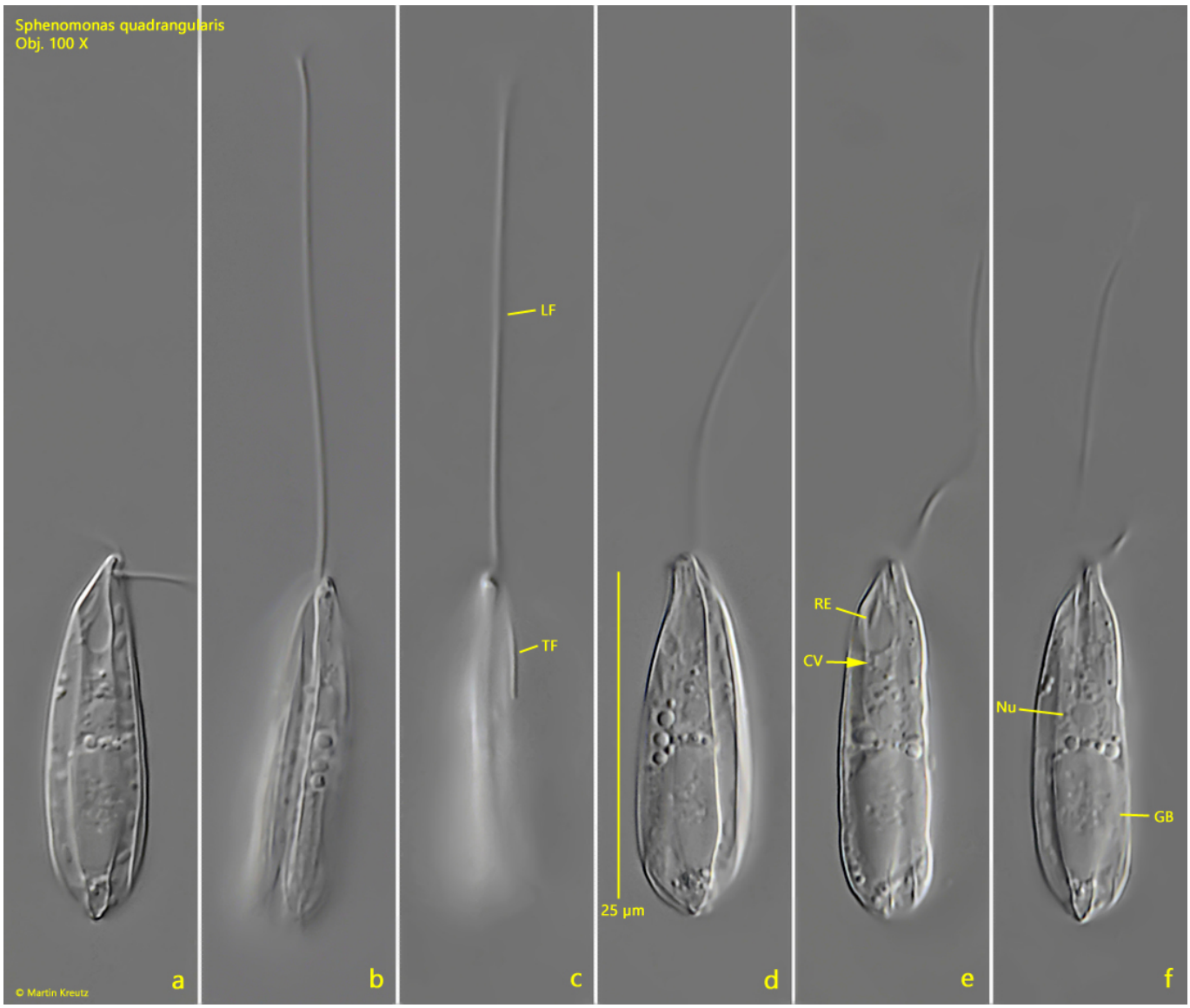


Fig. 2 a-f: *Sphenomonas quadrangularis*. L = 28 µm. Different focal planes of a second, freely swimming specimen. Note the contractile vacuole (CV) adjacent to the reservoir (RE) and the central nucleus (Nu). GB = gelatinous body, LF = locomotion flagellum, TF = trailing flagellum. Obj. 100 X.

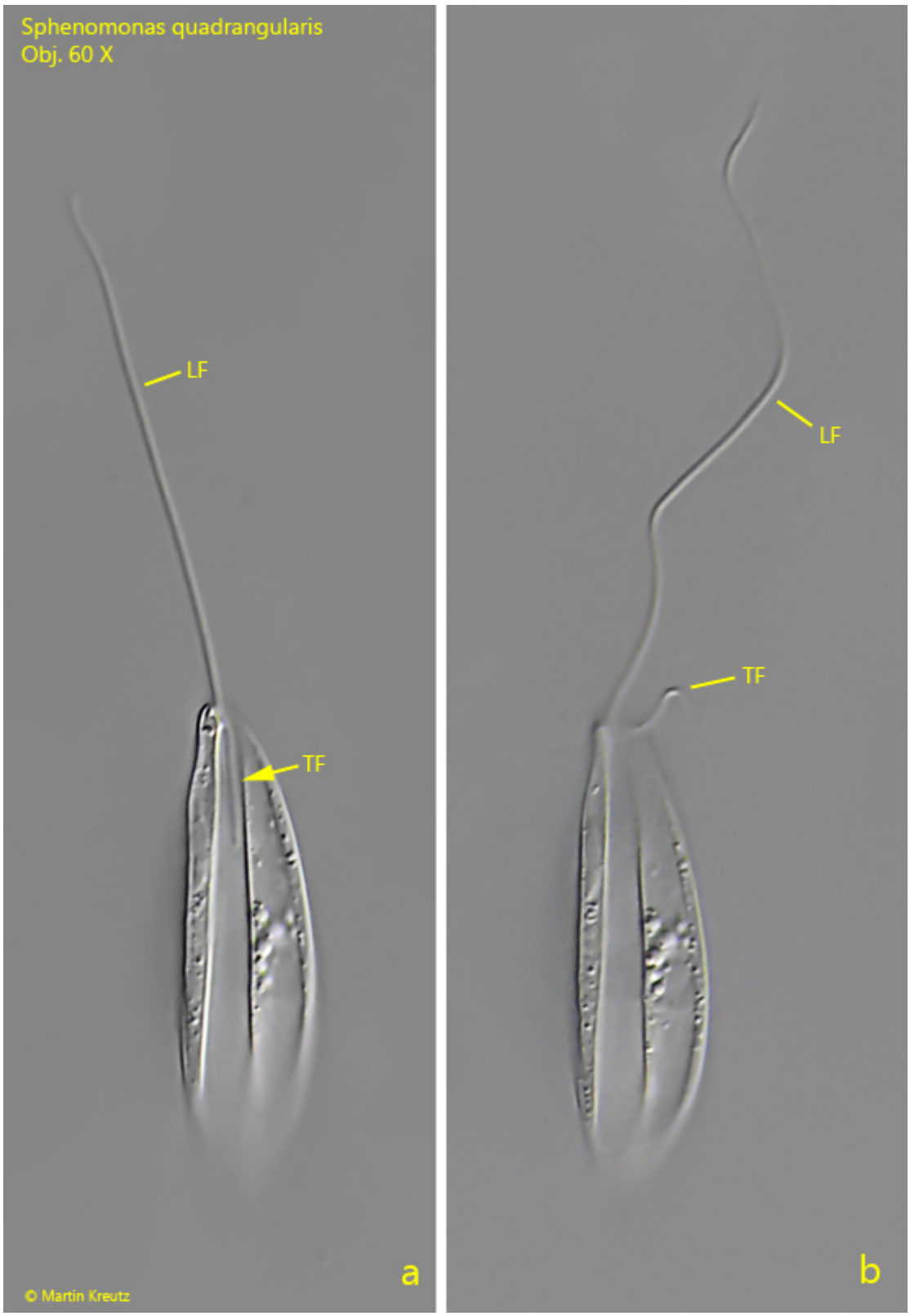


Fig. 3 a-b: *Sphenomonas quadrangularis*. L = 33 µm. A specimen gliding along the coverslip. Note the short trailing flagellum (TF), which can be placed close to the body between the longitudinal ribs (arrow). Obj. 60 X.

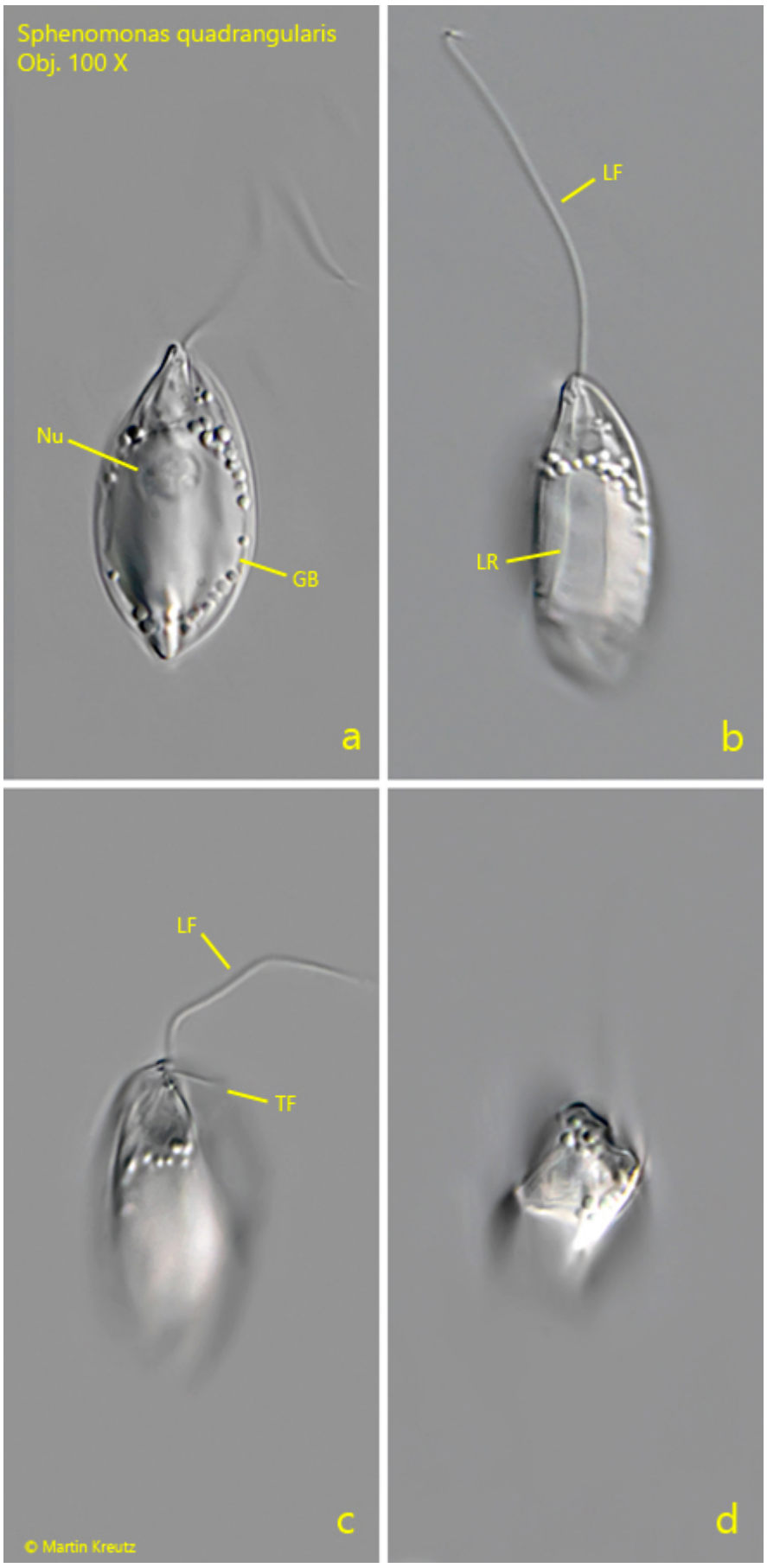


Fig. 4 a-d: *Sphenomonas quadrangularis*. L = 29 µm. A freely swimming, stockier specimen. Note the 4 ribs in optical cross-section (d). Obj. 100 X.