Diatoms are eukaryotic, unicellular algae in the family Bacillariophyceae that are present in almost every water habitat on earth. The frustule of these organisms are made of silica, and the shape of the frustule is characteristic for the different species.

AFM studies are important in taxonomy of phytoplankton species specially for characterization of diatoms with complex and fragile structure such as *Cylindrotheca fusiformis*. The greatest obstacle to examining diatoms with the electron microscope is the unphysiological conditions to which specimen must be exposed (fixation, dehydration, metal coating), which are eliminated using AFM. In this study we present results of AFM investigation of marine diatom *Cylindrotheca fusiformis* (Figures 1, 2). The diatom *Cylindrotheca fusiformis* was isolated from the northern Adriatic Sea and grown in filtered seawater enriched with f/2 medium. We have developed the original procedure for imaging intact *Cylindrotheca fusiformis* in hydrated state on mica substrates in air. AFM images have been collected using Multimode AFM with Nanoscope IIIa controller (Veeco Instruments, Santa Barbara, CA) with a vertical engagement (JV) 125 μm scanner. Contact imaging mode was performed. Commercially available sharpened silicon-nitride tips (NP-20, Veeco) were used. While imaging in contact mode the minimum force to maintain contact between the probe and the scanned surface was used.

Beside providing information about morphological characteristics of diatoms, AFM has already proven useful as a technique for investigating structural and mechanical properties of the outer layer of diatom-derived mucilage, the mechanical properties of adhesive mucilage material and diatom trails of several freshwater and marine diatom species.² ³
Figure 1. AFM image of an intact cell of *Cylindrotheca fusiformis* on mica. Vertical scale 1.6 µm.

Figure 2. AFM images of a detail of (a) medium part of *Cylindrotheca fusiformis* on mica. Vertical scale 0.6 µm. (b) upper pole of *Cylindrotheca fusiformis* on mica. Vertical scale 0.8 µm.

(1) Svetličič, V., Žutić, V., Hozić Zimmermann, A., Mišić, T., *unpublished data*