



Cyclotella iranica sp. nov. (Bacillariophyta: Coscinodiscophyceae), a new diatom from the Karaj River, Iran

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Abstract

Cyclotella iranica sp. nov. is described from the Karaj River, Iran. The morphology of *Cyclotella iranica* is documented with light and scanning electron micrographs and discussed in comparison with several related species: *Cyclotella fottii*, *C. delicatula*, *C. andancensis* var. *adnanensis*, *C. andancensis* var. *bauzilensis* and *C. andancensis* var. *bipolairae*. *Cyclotella iranica* shares with these related *Cyclotella* species the following features: unequal stria pattern, one sessile rimoportula and several marginal fultoportulae. It is distinguished from them by the position of central fultoportula(e), which is (are) situated at the central end of the striae. It is known only from the type locality; the autecology of *Cyclotella iranica* shows that it is tolerant of nutrient and organic enrichment.

Key words: *Cyclotella*, centric diatom, new species, Iran, Karaj River

Introduction

The Karaj River is one of the longest rivers of the Central Iranian Plateau (245 km; Bakhtiari 2008). Its water is used for agriculture, gardening and drinking by the residents of the Karaj River valley (and sub-catchments); it also meets the industrial and agricultural demands of the cities of Karaj, Tehran, Shahriar and Varamin (Rahmati 2007). This area of Iran is little studied for its diatom flora (Jamalou *et al.* 2007); the diatom flora of the Karaj River has not been investigated. The river suffers from heavy pollution due to unregulated releases of rural waste, primarily from the restaurants along the river and surrounding villages. Because of the Karaj River's primary importance to the province of Tehran, this study was undertaken to explore the diatom diversity of the river and to evaluate the relationship of the diatom communities to water quality.

The river starts in the north-western region of the plateau on the southern slope of the Albourz range. Its main tributaries are Welayat Rud, located in the north of Tehran, and Warange Rud beginning in the central Albourz ranges and located in the north-west of Karaj. These streams join at Gachsar to form the Karaj River. The catchment area of the Karaj River is 840 km². This terrain is delimited to the north by the central Albourz mountain ranges, the south by the city of Karaj, the east by the mountainous terrain of Tehran, and the west by the north end of Karaj (Rahmati 2007).

Epipellic samples were taken from the margins of the river monthly from March 2011 to April 2012. During this research, a new species of *Cyclotella* was discovered near the Aderan Village, downstream of the Amir Kabir Dam about 12 km along the road from Karaj to Chalous (35°53'N, 51°4' E, elevation 1555 m).