Preliminary Report of Diatoms from Maipokhari Lake, Ilam, Nepal

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Abstract
The present paper deals with 10 taxa belonging to 5 genera of Bacillariophycean algae first time from Maipokhari Lake of Ilam district. Out of these, 8 taxa viz., *Eunotia diodon* Ehr., *E. gracilis* (Ehr.) Rabenh., *E. monodon* Ehr. var. *bidens* (Greg.) Sm., *E. monodon* Ehr. var. *tropica* Hust., *Navicula placenta* Ehr., *Pinnularia conica* Gandhi, *P. sundaensis* Hust. and *Hantzschia amphioxys* (Ehr.) Grun. var. *capitata* Muell. are being reported for the first time from Nepal.

Key words: Algae, Bacillariophyceae, Diatom, Ilam, Maipokhari Lake, Nepal

Introduction
Diatom of Nepal has not been studied so far properly except some scanty works mainly from high altitude regions. Thus, very little information is available regarding their taxonomy and diversity in the country. A perusal of literature shows that the first record of diatom from Nepal was *Navicula confervacea* reported by Carter (1926) from Makawanpur district. A major contribution in the Nepalese diatom flora was made by Hirano (1955, 1963, 1984) who has described more than 176 taxa from high altitude Himalayan region of eastern and central Nepal. Later on, Suxena and Venkateswarlu (1968), Suxena *et al.* (1972), Hickel (1973, 1973a), Shrestha and Manandhar (1983), Ishida (1986), Aryal and Lacoul (1996), Habib (1997) and Rothfritz *et al.* (1997) have reported many diatoms from different parts of the country.

Maipokhari is a natural and religious lake situated at an elevation of 2,150 m just about 12.8 km north-west from Ilam Bazar. It has about 1 mile circumference with 9 distinct corners. There is no any report on diatom of Maipokhari Lake till the date. Hence, a preliminary attempt has been made to present an account of the same.

Materials and Methods
Algal samples were collected by squeezing aquatic macrophytes and using a plankton net (mesh size 0.5 mm) from different corners of the lake between 09.00h and 11.00h during the rainy season of 2004. Samples were preserved in 3-4% unbuffered formalin and frustules were cleaned following Patrick and Reimer (1966). Identification of species was by use of a Laica binocular microscope and relevant monographs. All the drawings were made from the permanent slides prepared in canada balsam with the help of camera-lucida. The classification of taxa here is according to Hendy (1964). Abbreviations and symbols used in the text are as CN= Collection number, DC= Date of collection, DN= Distribution in Nepal and (*) Asterisk= New to Nepal.

Taxonomic Description
Order: Bacillariales

26
Sub-order: Eunotiineae  
Family: Eunotiaceae  
Genus: *Eunotia* Ehrenberg 1837

1. *Eunotia diodon* Ehr. (Fig. 1)  
Foged, N. 1982, P. 351, Pl. 1, Fig. 18; Pl. 5, Fig. 20.  
Valves 30.5 µm long, 7.5 µm broad, arcuate, dorsal margin convex with two uniform hemps, ventral margin concave; ends broadly rounded, somewhat narrowed on the dorsal side; raphe small; polar nodules distinct at the apices near ventral margin; striae 15 in 10 µm, fine, lineate.  

2. *Eunotia gracilis* (Ehr.) Rabenh. (Fig. 4)  
Hustedt, F. 1959, P. 305, Fig. 771; Foged, N. 1986, P. 561, Pl. 2, Fig. 1.  
Valves 117 µm long, 5.5 µm broad, slender, more or less straight, slightly arched at the middle, almost parallel margins; ends swollen, rounded; polar nodules small, on the ventral margin near the apices; striae 12-13 in 10 µm, fine, lineate, parallel.  

3. *Eunotia monodon* Ehr. var. *bidens* (Greg.) Sm. (Fig. 2)  
Hustedt, F. 1959, P. 305, Fig. 772d; Foged, N. 1982, P. 351, Pl. 5, Fig. 13.  
Valves 67.5 µm long, 12.5 µm broad, slightly arched, dorsal margin convex with two wavy ridges at the middle, gradually narrowing towards the ends, ventral margin concave; ends slightly constricted on the dorsal side, slightly produced, rounded; raphe thin; polar nodules distinct, on the ventral side near the apices; striae 12 in 10 µm, coarse, lineate, parallel, some what radiate and closely placed near apices.  

4. *Eunotia monodon* Ehr. var. *tropica* Hust. (Fig. 3)  
Hustedt, F. 1938, P. 171, Pl. 11, Figs. 3-6.  
Valves 95 µm long, 14 µm broad, slightly arched, dorsal margin convex with four wavy ridges, ventral margin slightly concave, lineate; ends broadly rounded; raphe thin; polar nodules distinct, on the ventral side near the apices; striae 12 in 10 µm, coarse, lineate parallel in the middle but somewhat radiate and closely placed near apices.  
CN 275, DC 19-06-2004.

Sub-order: Naviculineae  
Family: Naviculaceae  
Genus: *Navicula* Bory 1822, Cleve 1894

5. *Navicula placenta* Ehr. (Figs. 5-6)  
Hustedt, F. 1938, P. 257, Pl. 20, Fig. 30; 1961-66, P. 342, Fig. 1452b.  
Valves 117 µm long, 5.5 µm broad, slender, more or less straight, slightly arched at the middle, almost parallel margins; ends swollen, rounded; polar nodules small, on the ventral margin near the apices; striae 12-13 in 10 µm, fine, lineate, parallel.  

6. *Pinnularia borealis* Ehr. (Fig. 9)  
Hustedt, F. 1938, P. 393, Pl. 21, Fig. 7; Foged, N. 1986, P. 567, Pl. 5, Fig. 20.  
Valves 52.5 µm long, 12 µm broad, linear, more or less parallel margins with slightly tapering, broadly rounded ends; raphe thick, straight, placed on one side with distinct, unilaterally curved central nodules and curved terminal fissures; axial area distinct, linear; central area large reaching the sides; striae 6 in 10 µm, coarse, 2-3 middle striae short and thick, radiate in the middle, convergent towards apices.
Family: Cymbellaceae
Genus: *Cymbella* C.A. Agardh 1830

9. *Cymbella cistula* (Hempr.) Kirchn. (Fig. 10)
Tiffany, L.H. and M.E. Britton 1952, P. 278, Pl. 74, Fig. 861; Foged, N. 1982, P. 355, Pl. 8, Fig. 13.
Valves 119 µm long, 23 µm broad, ventricose, curved, asymmetric, dorsal side convex, ventral side slightly concave with middle inflation; ends slightly constricted, produced rounded; raphe thick, arcuate, eccentric with ventrally curved central nodules; axial area not narrow; central area elliptical with 3-4 isolated stigmata at the ends of the middle ventral striae; striae 7-10 in 10 µm, punctate, radiate.

Family: Bacillariaceae
Genus: *Hantzschia* Grunow 1880

10. *Hantzschia amphioxys* (Ehr.) Grun. var. *capitata* Muell. (Fig. 11)
Tiffany, L.H. and M.E. Britton 1952, P. 289, Pl. 75, Fig. 887; Florin, M.B. 1970, P. 683, Pl. 8, Fig. i.
Valves 67.5 µm long, 7-8 µm broad, linear, dorsal side convex, ventral side slightly concave with distinct depression in the middle; ends slightly attenuated, constricted rounded to capitate; keel punctae 7-8 in 10 µm, coarse, distinct, thick, slightly elongated, median to distantly placed; striae fine, lineate, parallel.

**Results and Discussion**
During the present investigation, a total of 10 taxa belonging to 5 genera of class Bacillariophyceae have been reported on the basis of morphotaxonomic observation. Out of these, 8 taxa viz. *Eunotia diodon*, *E*. *gracilis*, *E*. *monodon* var. *bidens*, *E*. *monodon* var. *tropica*, *Navicula placenta*, *Pinnularia conica*, *P*. *sundaensis* and *Hantzschia amphioxys* var. *capitata* are the new records for the country. So far, no work has been done on the algal flora of Ilam, hence all these forms constitute new records from the area.
Due to natural and unpolluted lentic water, the lake harbour rich assemblage of various algal forms. Genus *Eunotia* is found to be dominant with its diverse forms.

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**References**


