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A CASE STUDY

Diatoms: the diamonds of aquatic life

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SUMMARY

Biodiversity of diatoms from different aquatic habitats were studied extensively in India by several workers but very few workers have paid attention on biodiversity of diatoms from the Marathwada region. To full fill this lacuna, the present investigation was carried out by selecting various habitats from the Beed district of Marathwada region during January 2007 to December 2007. In the present study the author came across a total of 47 species under 16 genera belonged to Bacillariophyceae.

Key Words : Biodiversity, Diatoms, Beed district

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India has a very rich and diversified algal flora. In the present century great advances have been made in the investigation of fresh water algae, marine algae, soil algae and atmospheric micro algae and particular attention has been paid to their taxonomy, ecology and applied aspects. In Marathwada region excepts few reports, very rare attention has been paid towards the diatoms although the climatic conditions are most suitable to grow algae luxuriently and in diverse form, therefore, to contribute this knowledge present work was carried out. Beed district is located on Deccan plateau at 16.65^0 N – 74.13^0 E. The average temperature ranges between 31^0C to 40^0C and average rainfall is 666 mm.

MATERIAL AND METHODS

Diatoms are nothing but the diamonds of aquatic life. Every sample of water or soil contains many diatoms. The algal samples were collected at monthly intervals from January to December 2007. The collections were made in acid washed collection bottles. The samples were preserved in 4 per cent formalin added with 5 per cent glycerine. The collections were made from different habitats like pools, ponds, streams, streamlets, cisterns, rivers, polluted water passages, dams, talaos, moist soil etc. The identifications are mostly based on monographs and revelent research paper (Hustedt, 1930; Cleve-Euler, 1955; Cholonky, 1956; Gandhi,1955; 1957; 1959; 1960; Gonzalves, 1947; Sarode and Kamat,1979; 1980; 1984).

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RESULTS AND DISCUSSION

In present investigation 47 species under 16 genera of diatoms were encountered (Table 1). Among the recorded 16 genera *Navicula* was dominantly occured and followed by *Pinnularia, Cymbela, Gomphonema, Cyclotella* and *Nitzschia, Synedra, Neidium Caloneis* and *Surirella* are the genera were recorded with its single species.Seasonal variation study reveals that maximum number of diatoms were encountered during summer months. The results are in agreement with those reported by Mahajan and Nandan (2006) and Takekar (2009). This is the first and preliminary survey of diatoms from the Beed district of Marathwada region of Maharashtra State, which is helpful to know the knowledge of diatoms from this area.

List of diatoms encountered from Beed district :

– *Cyclotella catenata* Brun.
– *Cyclotella meneghiniana* Kuetz.
– *Cyclotella meneghiniana* Kuetz. *f.* binotata Grun.
– *Cyclotella striata* (Kuetz) Grun.

– *Fragilaria intermedia* Grun.
– *Fragilaria ungeriana* Grun.
– *Synedra ulna* (Nitz.) Ehr.
– *Eunotia arcus* Ehr.
– Eunotia arcus Ehr. V. *uncinata* Grun.
– *Achnan thes breviceps* Agardh.
– *Achnanthes breviceps* Agardh v. *intermedia* (Kuetz.) Cleve.
– *Gyrosigma attenuatum* (Kuetz.) Rabh.
– *Gyrosigma distortum* (W. Smith) Cleve.
– *Gyrosigma Kuetzingji* (Grun.) Cleve.
– *Pleurosigma elongatum* W. Smith.
– *Pleurosigma elongatum* W. Smith v. *karianum* (Grun) Cleve.
– *Pleurosigma salinarum* Grun.
– *Caloneis permagna* (Bail) Cleve.
– *Neidium amphigomphous* (Ehr.) Cleve.
– *Anomoeonsis lanceolata* Gandhi.
– *Anomoeonesis sculpta* (Ehr.) Cleve.
– *Anomoeonesis sphaerophora* (Kuetz.) Pfitzer.
– *Navicula avenacea* Breb.
– *Navicula cincta* (Ehr.) Kuetz.
– *Navicula cuspidata* Kuetz.
– *Navicula cryptocephala* Kuetz.
– *Navicula pusilla* W. Smith.
– *Navicula salinarum* Grun.
– *Pinnularia aestuarii* Cleve.
– *Pinnularia aestuarii* Cleve v. *interrupta* (Husdtdt) A. Cl.
– *Pinnularia dolosa* Gandhi.
– *Pinnularia lundii* Hustedt.
– *Cymbella bengalensis* Grun.
– *Cymbella radiosa* Reichelt.
– *Cymbella turgida* (Greg.) Cleve.
– *Cymbella turgidula* Grun.
– *Cymbella ventricosa* Kuetz.
– *Gomphonema gracile* Ehr.
– *Gomphonema lanceolatum* Ehr.
– *Gomphonema moniliforme* Gandhi.
– *Gomphonema parvulum* (Kuetz.) Grun.
– *Gomphonema subventricosa* Hustedt.
– *Nitzschia apicalata* (Gerg.) Grun.
– *Nitzschia closterium* W. Smith.
– *Nitzschia obtuse* W. Smith.
– *Nitzschia panctata* (W. Smith) Grun
– *Surirella subsalsa* W. Smith.

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REFERENCES

Barhate, V.P. and Tarar, J.L. (1985). Additions to the algal flora of Maharashtra, Diatoms from Khandesh II. *J. Indian Bot. Soc.*, **64** (4) : 381-384.

Bhoge, O.N. and Ragothaman, G. (2003). Diatoms from the soil of Hantur dam, Jalgaon District Maharashtra. *J. Adv. Sci. & Tech.*, **6** (I & II) : 56-59.

Bhoge, O.N. and Ragothaman, G. (2005). Genus Nitzschia from the soil of Suki dam, Jalgaon District Maharashtra. *J. Aqua. Biol.*, **20** (2) : 13-16.

Cholonky, B.J. (1956). Neue and Seltene Diatomeen aus Afrika II. Diatomeen aus dem Tugela-Gebiete in Natal. *Ost. Bot. Zeit*., **103**: 53-97.

Cleve-Euler, A. (1955). Die. Diatomeen Von Schweden and Finnland III – V. K. Svenska Ventensk – *Akad. Handl. Fjurde Ser.*, **5** : 1 – 232.

Gandhi, H.P. (1955). A contribution to our knowledge of the freshwater diatoms of Pratapgarh, Rajashthan, *J. Indian Bot. Soc.*, **34** : 307-338.

Gandhi, H.P. (1957). The freshwater diatoms from Radhanagari, Kolhapur, Ceylon *J. Sci. Biol.*,**1** : 45-57.

Gandhi, H.P. (1959). The freshwater diatom flora from Panlagarh Hillfort in the Kolhapur district, *Hydrobiol.*, **14**:93-129.

Gandhi, H.P. (1960). The diatom flora of the Bombay and Salsette islands. *J. Bombay Nat Hist. Soc.*, **57**:78-123.

Gonzalves, E.A. (1947). The algal flora of Hot springs of Vajreshwari, near Bombay. *J. Univ. Bombay,* **16** : 22-27.

Hustedt, F. (1930). Bacillariophyta (Diatomeae) In A. Pascher's Die Susswasser – *Flora Mittaeuropas,* **10**.

Mahajan, S.R. and Nandan, S.N. (2006).A study of Bacillariophycean diversity in polluted lakes of Jalgaon district Maharashtra. Biodiversity: *Assesment and Conservation, Agrobios,* Jodhpur (RAJASTHAN) INDIA pp.153-176.

Sarode, P.T. and Kamat, N.D. (1979). Diatoms of Marathwada, *Maharashtra J. Phycos.*, **18** : 25-32.

Sarode, P.T. and Kamat, N.D. (1980) Diatoms flora of Nagpur, *India Nova Hedwigia*, **32**:797-838.

Sarode,P.T.and Kamat,N.D.(1984).*Fresh water diatoms of Maharashtra,* Saikripa Prakashan, Aurangabad, pp.268-323.

Takekar, S.M. (2009). Studies on algal biodiversity of Manjra river and its reservoirs in Beed district of Maharashtra Ph.D. Thesis, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, M.S. (INDIA).

Venkatarama, G. (1939). A systematic account of some South Indian diatoms. *Proc. Indian Acad. Sci.,* **10** : 293-368.