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SYSTEMATIC ACCOUNT OF BACILLARIOPHYTA OF DHULE AND NANDURBAR DISTRICT, MAHARASHTRA (INDIA)

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ABSTRACT:

During the study of systematic account of bacillariophyta of Sakri and Navapur district Dhule and Nandurbar respectively, Maharashtra the author collected 63 taxa belonging to 18 genera. *Achnanthes* Bory de. St. Vincent is a dominant genus, followed by *Fragilaria* Lyngbye, *Synedra* Ehren., *Gyrosigma* Hassall. emend.Clveve, *Calonies* Cleve, *Stauronies* Ehren., *Cyclotella* (Kuetz.)Brebisson, *Eunotia* Ehren., *Mastogloi* Thwaites, *Neidium* Pfitzer, *Cocconeis* Ehren. *Pleurosigma* W.Smith emend. Cleve, *Diponeis* Ehren., *Anomoeoneis* Pfitzer, while four genera are monotypic.

Out of 63 taxa, two taxa: *Neidium affine* (Ehr.) Cleve and *Neidium affine* (Ehr.)Cleve form *undulate* Grun. are first time recorded from India; *Tabellaria flocculosa* (Roth) Kutz. is new record for Maharashtra, 11 are recorded for the second time from Maharashtra.

The diatoms of this region have not been studied earlier. This is the first ever attempt to explore, enumerate and taxonomically evaluate the algal components of the area. Distribution of taxa in India has been discussed.

KEY WORD: *Systematic account, Bacillariophyta, Maharashtra, Distribution.*

INTRODUCTION:

The district Dhule now split in two separate districts i.e. district Dhule and district Nandurbar. It lies between $20^0 28'$ and $20^0 3'$ North latitude and $73^0 47'$ and $75^0 11'$ East longitude.

Though a good amount of work has been done on diatoms of Maharashtra i.e. Gonzalves and Gangle(1949), Gonzalves and Gandhi(1952, 1953, 1958, 1972, 1978), Gandhi(1926b, 1956, 1957, 1957a, 1958, 1958b, 1959c, 1962a, 1962b, 1966b), Thomas and Gonzalves(1965), Sarode and Kamat(1978, 1979, 1980, 1980a, 1980b, 1983, 1983a, 1984), Barhate and Tarar(1981, 1983), Nandkar et al.(1983), Tarar and Shewale(1984), Nandan and Borse(1996), Tarar and Bodkhe(1998), Kumawat and Jawale(2005), Mahajan et. al. (2005), Shastri and Pendse (2005), no information exist on the diatoms of Sakri and Navapur.

In this communication 63 taxa of diatoms are included. Out of these two taxa are reported first time from India, one is new to Maharashtra and 11 are recorded for the second time from Maharashtra.

MATERIALS AND METHODS:

One taluka from each district i.e. Sakri from Dhule district and Navapur from Nandurbar district is selected for systematic study of diatoms.

Total 28 collection sites were selected from two talukas. The sampling sites were selected very carefully, so as to get maximum number of algal forms growing in varied habitat. Sampling was done from all possible places of collection area. Total 320 collections were studied. The collections were made from December 1990 to January 1992 and from March 1998 to March 1999. Habit and habitat were noted down. All collection were preserved in 4% commercial formaline and deposited in the department of Botany, Arts, Commerce and Science College, Navapur.

Cleaning of diatoms was done as per Sarode and Kamat (1984).

Identification is done with the help of standard references, research papers and monographs: West(1907), Smith(1920), Hustedt(1930),Venkataraman(1939), Thomas and Gonzalves(1965a,b,c,d,e,f), Sarode and Kamat(1978, 1980, 1983, 1984), Bongle(1985), Prasad and Jaitly(1986),Pal and Santra(1990), Compere(1994), Cox(1996), Kant and Gupta(1998).

RESULTS:

SYSTEMATIC ACCOUNT

BACILLARIOPHYTA

DIATOMATAE

CENTRALES

DISCINEAE

COSCINODISACACEAE

MELOSIROIDEAE

MELOSIRA Agardh

***Melosira granulate* (Her.)Muel var. *angustissima* O. Muel**

Length 8µ, breadth 5.5µ

Habitat: On moist wall in college campus (VVR)

Navapur(10.3.1991)

Distribution: M.S. Kolhapur (Gandhi, 1958b; Sarode and Kamat, 1984), Bombay (Gandhi, 1962a), Lonavala (Gandhi, 1962b), Ganeshpuri, Rajewadi (Thomas and Gonzalves, 1965), Aurangabad (Sarode and Kamat, 1978; 1979), Nagpur (Sarode and Kamat, 1980a); G.S. Tuwa (Thomas and Gonzalves, 1965); Bi. Bhagalpur (Kumar and Shah, 1993); T.N. Madras (Venkataraman, 1939)

COSCINODISCOIEAE

CYCLOTELLA (Kuet.) Breb.

***Cyclotella glomerata* Bachman**

Diameter 11µ, striae 8 in 10µ

Habitat: In road side ditch (VR)

Chinchpada railway station (2.11.1998)

Distribution: M.S. Lonavala (Gandhi, 1962b), Nagpur (Sarode and Kamat, 1984) U.P. Rapti river: Gorakhpur (Srivastava and Singh, 1995), River Gomti-Lucknow (Verma et. al., 1996), Bi. Bhagalpur (Kumar and Shah, 1993)

***Cyclotella meneghiniana* Kuetz.**

Diameter 15µ

Habitat: In dead pond(C)

Pimpalner (10.2.1991)

Distribution: M.S. Bombay(Gonzalves and Gandhi, 1952;1958b), Lonavala(Gandhi, 1962b), Aurangabad(Sarode and Kamat,1978; 1979; 1984), Bhandara(Sarode and Kamat,1983), Khandesh(Barhate and Tarar, 1983), Nagpur, Bhusaval, Jalgaon(Sarode and Kamat,1983) Ra. Jaipur(Trivedy,1982), U.P. Gorakhpur, Lucknow(Verma et.al.,1996), J.& K. Kashmir valley(Compere, 1983), Ladakh(Kant and Gupta,1998), G.S. Unai, Lasundra(Thomas and Gonzalves, 1965), Hajira(Ragothaman and Thomas, 1988), K.S. River Kapila(Somashekar, 1984), Bi. Bhagalpur (Nasar and Munshi, 1976), (Kumar and Shah, 1993), Or. Bhubaneswar (Mohanty, 1990), South India (Venkataraman, 1939), W.B. (Sabata and Nayar, 1995)

***Cyclotella meneghiniana* Kuetz. form *binotata* Grun**

Diameter17µ

Habitat: Road side ditch (RC)

Navapur (20.6.1998)

Distribution: M.S. Kolhapur (Gandhi, 1956; 1958b), Osmanabad (Sarode and Kamat, 1978), Amravati, Katta (Sarode and Kamat, 1983a), Nagpur, Jalna, Dhule (Sarode and Kamat, 1984), Bi. Bhagalpur (Saha, 1986), (Kumar and Shah, 1993)

PENNALES

ARAPHIDINEAE

FRAGILARIACEAE

FRAGILARIOIDEAE

FRAGILARIA Lyngbye

***Fragilaria brevistriata* Grun var. *papillosa* A.Cl.**

Valves 15.5-17µ long, 4.5-6.5µ broad; striae 14-15 in 10µ

Habitat: Soil algae(C)

Kondaibari (1.8.1998)

Distribution: M.S. Aurangabad, Parbhani, Latur (Sarode and Kamat, 1984)

***Fragilaria brevistriata* Grun form *elongate* Venkat.**

Length 28µ, breadth 5µ

Habitat: In a stagnant water(C)

Navapur (10.3.1991)

Distribution: M.S. Bhusaval (Barhate and Tarar, 1981), Nagpur (Nandkar et.al., 1983; Tarar and Shewale, 1984; Tarar and Bodkhe, 1998)

***Fragilaria construens* (Ehr.)Grun var. *venter* Grun. form *pusill* Grun.**

Length 18µ, breadth 6µ

Habitat: Attached to other algae in running water(C)

Gangapur (7.4.1998)

Distribution: M.S. Kolhapur, Ahmednagar (Sarode and Kamat, 1984), J. & K. Ladakh (Kant and Gupta, 1998), Bi. Bhagalpur (Kumar and Saha, 1993)

Fragilaria rumpens (Kuetz) Carl

Valves 31.5µ long, 3µ broad, striae 16 in 10µ

Habitat: In pond (RC)

Kondaibari (1.8.1998)

Distribution: Bombay (Gonzalves and Gandhi, 1972), Aurangabad (Sarode and Kamat, 1979), Sahapur (Sarode and Kamat, 1984)

***Fragilaria rumpens* (Kuetz) Carl var. *familiaris* (Kutz.) A.Cl.**

Length 52µ, breadth 3.6µ

Habitat: In pond (RC)

Kondaibari (1.8.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1952), Kolhapur (Gandhi, 1958b; Sarode and Kamat, 1984), Rajapur (Thomas and Gonzalves, 1965), Aurangabad, Bhir (Sarode and Kamat, 1978; 1984), Amaravati (Sarode and Kamat, 1883a), Nagpur, Bhir, Dhule, Jalgaon, (Sarode and Kamat, 1984), Bi. Bhagalpur (Saha, 1986), W.B. Midnapore (Pal and Santra, 1990)

***Fragilaria intermedia* Grun**

Length 84µ, breadth 7µ

Habitat: In stream(C)

Navapur (4.4.1998)

Distribution; M.S. Bombay(Gonzalves and Gandhi, 1952), Radhanagari(Gandhi, 1957a), Kolhapur(Gandhi, 1958), Bhusaval(Barhate and Tarar, 1981), Wardha, Chandrapur(Sarode and Kamat,1983a), Pavnar, Dhule(1984), Khandesh(Nandan and Borse, 1996), Ra. Jaipur(Trivedy, 1982), U.P. River Alaknanda(Nautiyal et.al., 1996), Bi. Bhagalpur (Kumar and Saha, 1993), Ke. Aliyar river (Sankaran, 1984)

***Fragilaria intermedia* Grun var. *robusta* Sarode et. Kamat**

Length 142µ, breadth 11µ

Habitat: In pool (VC)

Sakri (1.10.1998)

Distribution: M.S. Nagpur (Tarar and Bodkhe, 1998), U.P. Rohilkhand division (Chaturvedi, 1985), T.N. Vaiyampatti (Venkataraman, 1939)

***Fragilaria intermedia* Grun form *chandrapurensis* Sarode et. Kamat**

Length 48µ, breadth 7.5µ

Habitat: On a moist soil near a standing water pool (RR)

Chinchpada railway station (8.11.1998)

Distribution: M.S. Chandrapur (Sarode and Kamat, 1983), Karad (Sarode and Kamat, 1984)

***RAPHONEIS* Ehren**

***Raphoneis amphiceros* Ehr. form *linearis* Gonzalves et.Gandhi**

Valves 20-23.5µ long, 7.2-7.8µ broad, striae 20-24 in 10µ

Habitat: In a cement tank at temple site (RC)

Kondaibari (1.8.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1952), Thane (Sarode and Kamat, 1984)

TABEHARIOIDEAE

TABELLARIA

***Tabellaria floccullosa* (Roth) Kutz.**

Length 41.4µ, breadth 13.8µ

Habitat: Sol algae (VVR)

Samode (5.7.1998)

Distribution: M.P. Choolgiri Hills (Mahajan, 1991), J & K Kashmir velley, Ladakh (Compere, 1983), Ladakh (Kant and Gupta, 1998), T.N. Kodaikanal (Venkataraman, 1930)

SYNEDRA Ehren

***Synedra acus* Kuetz. var. *acula* (Kuetz.) V.H.**

Length 127.2µ, breadth 7µ

Habitat: In a dead pond (VC)

Sakri (1.10.1998)

Distribution: M.S. Bhir, Aurangabad (Sarode and Kamat, 1978), Nagpur (Sarode and Kamat, 1980), Amravati, Khamagaon, Bhandara, Gangapur (Sarode and Kamat, 1983), Satara (Sarode and Kamat, 1984), Bi. Bhagalpur (Kumar and Shah, 1993)

***Synedra acus* Kuetz. var.*radians* (Kuetz.)Hustedt**

Length 62.3µ, breadth 2.2µ

Habitat: On the bark of *Butea frondosa* Koen ex.Roxb with blue green algae (RR)

Navapur (4.4.1998)

Distribution: M.S. Nagpur (Sarode and Kamat, 1984), U.P. River Alaknanda (Nautiyal et.ai., 1996)

***Synedra ulna* (Nitzsch) Ehr.**

Length 131.02-135.3µ, breadth 5.42-7µ, striae 10-12 in 10µ

Habitat: Growing with *Funaria spp.* on a cement wall in college campus (RC)

Samode (5.7.1998)

Distribution: M.S. Bombay(Gonzalves and Gandhi, 1952), Radhanagari(Gandhi, 1957a), Kolhapur(Gandhi,1958b; Sarode and Kamat, 1984), Panhalgad(Gandhi, 1959c), Lonavala(Gandhi, 1962b), Aurangabad, Jalna(Sarode and Kamat, 1978), Bhusawal(Barhate and Tarar, 1981), Khandesh(Barhate and Tarar, 1983), Wardha, Chandrapur(Sarode and Kamat, 1984), U.P. Lucknow(Prasad and Jaitly, 1986), River Ganga(Bilgrami, 1991), River Ganga: Bithoor(Gupta and Shukla, 1994), M.P. Chatta(Roy and Sen, 1985), Choolgirihills(Mahajan, 1991), Ra. Jaipur(Trivedy, 1982), Srinagar(Chaturvedi and Habib, 1995), River Gomti(Verma et. al., 1996), River Alaknanda(Nautiyal, 1996), J & K Ladakh(Kant and Gupta,1998), K.S. Mysore(Somashekar, 1984), Bi. Bhagalpur (Nasar and Munshi, 1976: Shah, 1986: Kumar and Shah, 1993), Or. Bhubaneshwar (Mohanty, 1990), T.N. Madras, Vaiyampatti (Venkataraman, 1939), W.B. Darjeeling (Das and Santra, 1982), Midnapore (Pal and Santra, 1990)(Sabata and Nayar, 1995)

***Synedra ulna* (Nitzsch) Ehr. form *stauro-destituta* Pant.**

Length 98µ, breadth 8µ
Habitat: On moist soil near river bank(C)
Vadphali (4.4.1998)
Distribution: M.S. Panhalgad (Gandhi, 1959c), Pune, Kalyan, Matheran (Sarode and Kamat, 1984), Bi. Bhagalpur (Singh and Saha, 1982)

***Synedra ulna* (Nitzsch) Ehr.var. *biceps* Kuetz.**

Length 360µ, breadth 7.1µ
Habitat: In pond (A)
Navapur (4.4.1998)
Distribution: M.S. Bombay (Gonzalves and Gandhi, 1978), Ramtek (Sarode and Kamat, 1983), Nagpur (Sarode and Kamat, 1984), K.S. River Cauvery (Somashekar, 1983), Bi. Bhagalpur (Saha, 1986), Or. Bhubaneswar (Mohanty, 1090)

***Synedra ulna* (Nitzsch) Ehr.var. *danica* (Kuetz.) Grun.**

Length 140µ, breadth 4.5µ
Habitat: Wall algae (RR)
Sakri (1.10.1998)
Distribution: M.S. Bombay: Pawai(Gonzalves and Gandhi, 1952), Radhanagari(Gandhi,1957a), Kolhapur(Gandhi, 1958b), Jalgaon(Sarode and Kamat, 1984), Ra. Pratapgarh(Gandhi, 1955), U.P. Allahabad(Pandey, 1980b), Pithoragrah(Chaturvedi and Habib, 1993), Srinagar(Chaturvedi and Habib, 1995), A.P. Hyderabad(Seenayya, 1972), J & K Ladakh(Prasad and Jaitly, 1985), G.S. Ahmadabad(Gandhi, 1964: 1967), K.S. Mugad(Gandhi, 1959a), Dharwar(Gandhi, 1959b), Mysore: Jog

falls(Gandhi, 1966), River Kapila(Somashekar, 1984), Bi. Bhagalpur (Kumar and Saha, 1993), T.N. Madras (Iyengar and Venkataraman, 1951), Eastern Himalaya: Cho-Oya (Suxena and Venkataraman, 1968)

***Synedra ulna* (Nitzsch) Ehr.var. *subaequalis* Grun.**

Length 211.3µ, breadth 8.5µ

Habitat: In pond (RR)

Chinchpada railway station (8.11.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1952), Kolhapur (Gandhi, 1958b), Jalna, Aurangabad, Pali (Sarode and Kamat, 1978), Ramtek, Wardha, Amaravati, Chandrapur (Sarode and Kamat, 1983), Bhir, Aurangabad (Sarode and Kamat, 1984), K.S. RiverCauvery (Somashekar, 1983), Bi. Bhagalpur (Saha, 1986)

RAPHIDIODINEAE

EUNOTIACEAE

EUNOTIOIDEAE

EUNOTIA Ehrenberg

***Eunotia arcus* Ehr.**

Length 27µ, breadth 6.5µ, striae 11 in 10µ

Habitat: From dead pond(C)

Kondaibari (1.8.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1952), Aurangabad (Sarode and Kamat, 1978), Katta (Sarode and Kamat, 1983a), Nagpur (Tarar and Bodkhe, 1998), K.S. (Bongale and Bharati, 1980) (Bongale, 1985), South Western region (Bharati, 1990)

***Eunoti camelus* (Ehr.) A. Berg. form *dentate* Oregon**

Length 49.3µ, breadth 6.6µ, striae 13 in 10µ

Habitat: From dead pond (RC)

Chinchpada railway station (8.11.1998)

Distribution: M.S. Katta (Sarode and Kamat, 1983a)

***Eunotia prearupta* Ehr. var. *inflate* Grun.**

Length 39µ, breadth 8.7µ, striae 10 in 10µ

Habitat: From dead pond(C)

Gangapur (7.4.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1952), Kolhapur, Osmanabad (Sarode and Kamat, 1984)

MONORAPHIDINEAE

ACHNANTHACEAE

COCCONEOIDEAE

COCCONEIS Ehrenberg

***Cocconeis placentula* Ehr.var. *euglypta* (Ehr.)Cleve.**

Length 25µ, breadth 14.2µ

Habitat: On *Cladophor* sp. in road side rainwater ditch and on moist soil

Navapur (20.6.1998) and Sakri (1.10.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1952), Kolhapur (Gandhi, 1958b), Lonavala (Gandhi, 1926b), Bhir (Sarode and Kamat, 1978), Khandesh (Barhate and Tarar, 1983), J & K Ladakh (Kant and Gupta, 1998), K.S. River Cauvery (Somashekar, 1983), River Kapila (Somashekar, 1984), Bi. Bhagalpur (Kumar and Saha, 1993), T.N. Vaiyampati, Madras (Venkataraman, 1939), W.B. Darjeeling (Das and Santra, 1982) (Sabata and Nayar, 1955)

***Cocconeis placentula* Ehr.var. *lineate* (Ehr.)Cleve.**

Striae 18-20 in 10µ

Habitat: On moist soil(R)

Khandbara (19.7.1998)

Distribution: Bombay (Gonzalves and Gandhi, 1952), Karad, Pune (Sarode and Kamat, 1984), J & K Kashmir Valley, Ladakh (Compere, 1983), Ladakh (Kant and Gupta, 1998)

ACHNANTHES Bory de.st.Vincent

***Achnanthes affinis* Grun.**

Length 14µ, breadth 3.5µ

Habitat: On moist soil(C)

Khandbara (19.7.1998)

Distribution: M.S. Bombay (Gandhi, 1962a), Lonavala (Gandhi, 1962b), Karad, Sangli (Sarode and Kamat, 1984), K.S. (Bongale and Bharati, 1980) (Bongale, 1985), South-Western region (Bharati, 1990), Bi. Bhagalpur (Kumar and Saha, 1993)

***Achnanthes brevipes* Agardh. var. *intermedia*(Kuetz.) Cleve**

Valves 45-55µ long, 10.5-12µ broad, striae 9-10 in 10µ

Habitat: Rain water pool (VR)

Bedki (3.10.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1952), Karad, Sangli, Kalyan, Alibag (Sarode and Kamat, 1984)

***Achnanthes exigua* Grun.**

Length 15µ, breadth 6µ

Habitat: A scum near water edge(R)

Gangapur (7.4.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1952), Lonavala (Gandhi, 1962b), Aurangabad (Sarode and Kamat, 1978), Kolhapur, Jalgaon (Sarode and Kamat, 1984), J & K River Cauvery (Somashekar, 1983), Bi. Bhagalpur (Saha, 1986; Kumar and Saha, 1993)

***Achnanthes exigua* Grun. var.*heterovalvata* Krasske**

Length 8µ, breadth 3.5µ

Habitat: On a cement wall in college campus (RR)

Navapur (28.8.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1952), Lonavala (Gandhi, 1962b), Aurangabad (Sarode and Kamat, 1984)

***Achnanthes hauckiana* Grun.**

18.6-20µ long, 5.7µ broad, striae 12-15 in 10µ

Habitat: Rain water ditch(C)

Navapur (4.4.1998)

Distribution: M.S. Khandesh (Barhate and Tarar, 1983), Nagpur (Tarar and Bodkhe, 1998), T.N. Madras (Venkataraman, 1939)

***Achnanthes lanceolata* (Breb.)Grun.**

Length 26µ, breadth 5µ, striae 18-20 in 10µ

Habitat: In road side ditch (VR)

Dusane (1.8.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1952), Lonavala (Gandhi, 1962b), Nagpur (Sarode and Kamat, 1980a), Bhusawal(Barhate and Tarar, 1981), J & K Kashmir Valley, Ladakh(Compere, 1983), Ladakh(Kant and Gupta, 1998), Bi. Bhagalpur (Kumar and Saha, 1993)

***Achnanthes lanceolata* (Breb.)Grun. var.*rostrata* Hustedt**

Length 10µ, breadth 4µ, striae 12 in 10µ

Habitat: In waste water passage (A)

Navapur (4.4.1998)

Distribution: M.S. Ramtek (Sarode and Kamat, 1983a), Mansar (Sarode and Kamat, 1884)

***Achnanthes lanceolata* (Breb.)Grun. var.*tenuis* Gonzalves et. Gandhi**

Length 19µ, breadth 6.5µ

Habitat: On river bank (RC)

Sakri (1.10.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1952), Alibag, Thana (Sarode and Kamat, 1984)

***Achnanthus microcephala* (Kuetz.) Grun.**

Length 15.1-18.5µ, breadth 2.8µ, striae 31 in 10µ

Habitat: Water ditch near Kan river (VR)

Sakri (1.10.1998)

Distribution: M.S. Bombay(1962a), Lonavala(Gandhi, 1962b), Khamagaon (Sarode and Kamat, 1983a), Jalgaon, Dhule Mahad(Sarode and Kamat, 1984), Nagpur(Tarar and Bodkhe, 1998), U.P. River Rapti-Gorakhpur(Srivastava and Singh, 1995), K.S. River Cauvery(Somashekar, 1983), Mysore(Somashekar and Ramswamy, 1983), River Kapila(Somashekar, 1984)(Bongle, 1985), Or. Puri (Chatterjee and Mohanty, 1990)

***Achnanthus minutissima* (Kuetz.) Grun.**

Length 32.4µ, breadth 3.7µ

Habitat: Waste water passage(C)

Navapur (20.6.1998)

Distribution: M.S. Kolhapur(Gandhi, 1958b), Bombay(Gandhi, 1962a), Aurangabad(Sarode and Kamat,1978; 1984), Nagpur(Sarode and Kamat, 1980), Dhule(Sarode and Kamat, 1984), J & K Kashmir Valley, Ladakh(Compere, 1983), Ladakh(Kant and Gupta, 1998), K.S. River Kapila(Somashekar, 1984), Bi. Bhagalpur (Kumar and Shah, 1993)

BIRAPHIDINEAE

NAVICULACEAE

NAVICULOIDEAE

MASTOGLOIA Thwaites

***Mastogloia boltica* Grun.**

Length 34µ, breadth 10µ, striae 20 in 10µ

Habitat: On fresh water *Spogelia* sp. (C)

Pimpalner (10.2.1991)

Distribution: M.S. Nagpur (Sarode and Kamat, 1980a), Khamagaon (Sarode and Kamat, 1983a), Sahapur, Jalgaon (Sarode and Kamat, 1984)

***Mastogloia exigua* Lweis form *brevirostris* Venkataraman**

Length 34.1µ, breadth 14µ, striae 18 in 10µ

Habitat: In waste water passage (RC)

Vajadare (2.7.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1952), Thane, Bhivandi (Sarode and Kamat, 1984), T.N. Madras (Venkataraman, 1939)

***Mastogloia smithii* Thwaites var.*lacustris* Grun.**

Length 48.5µ, breadth 13µ, striae 20 in 10µ

Habitat: River side ditch (RR)

Navapur (31.3, 1998)

Distribution: M.S. Nagpur (Sarode and Kamat, 1980a), U.P. Rohilkhand division (Chaturvedi, 1985), J & K Kashmir Valley (Compere, 1983), K.S. River Cauvery (Somashekar, 1983), River Kapila (Somashekar, 1984)

FRUSTULIA Agardh.

***Frustulia saxonica* Rabh. var. *linearis* A.Cl. form *capitata* Gandhi**

Length 37.8µ long, breadth 10µ, striae 32 in 10µ

Habitat: On fresh water *Spongelia* sp. (A)

Pimpalner (5.7.1998)

Distribution: M.S. Radhanagari (Gandhi, 1957), Karad (Sarode and Kamat, 1984)

GYROSIGMA Hassall. emend. Clveve

***Gyrosigma bhusavalensis* Sarode et. Kamat**

Length 123.6µ, breadth 23.5µ

Habitat: In small pond (RC)

Kondaibari (1.8.1998)

Distribution: M.S. Bhusaval (Sarode and Kamat, 1984)

***Gyrosigma khandeshnsis* Sarode et. Kamat**

Length 95.1µ, breadth 16.5µ, transverse striar 23 in 10µ, longitudinal striae 18 in 10µ
Habitat: Stream near Gangapur (VR)
Gangapur (7.4.1998)
Distribution: M.S. Bhusaval (Sarode and Kamat, 1984)

***Gyrosigma kuetzingii* (Grun) Cleve**

Length 85µ, breadth 13.5µ
Habitat: On moist soil (RR)
Pimpalner (5.7.1998)
Distribution: M.S. Bombay (Gonzalves and Gandhi, 1953), Bhusaval, Jalgaon (Sarode and Kamat, 1984), Ra. Jaipur (Trivedi, 1982)

***Gyrosigma scalproides* (Rabh.) Cleve.**

Length 47µ, weadth 7.5µ, transverse striae 4 in 10µ, longitudinal striae 24 in 10µ
Habitat: On muddy soil and on moist wood(C)
Samode (26.3.1998) and Navapur (8.11.1998)
Distribution: M.S. Bombay(Gonzalves and Gandhi, 1953), Sav(Thomas and Gonzalves, 1965), Thana(Sarode and Kamat, 1984), Nagpur(Tarar and Bodkhe, 1998), M.P. Chattisgarh(Roy and Sen, 1985), U.P. Srinagar(Chaturvedi and Habib, 1995), River Alaknanda(Nautiyal et.al., 1996), J&K Kashmir Valley(Compere, 1983), K.S. River Cauvery(Somashekar, 1983), River Kapila(Somashekar, 1984)

***Gyrosigma spencerii* (W.Smith) Clever**

Length 101µ, breadth 13µ, transverse striae 18 in 10µ, longitudinal striae 24 in 10µ
Habitat: In running water attached to other algae in Rangawali river (RC)
Navapur (4.4.1998)
Distribution: M.S. Nagpur (Tarar and Bodkhe, 1998), U.P. Sahajahanpur (Pandey, 1982), Rohilkhand division (Chaturvedi, 1985), River Alaknanda (Nautiyal et.al., 1996), W.B. Kalimpong (Prasad et.al., 1988)

PPEUROSIGMA W.Smith emend. Cleve.

***Pleurosigma salinarum* Grun.**

Length 117µ, breadth 12.4µ
Habitat: In semi drying pond (VR)

Bedki (3.10.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1953), Pallod, Dhule (Sarode and Kamat, 1984), Ke. River Aliyar (Sankaran, 1984)

***Pleurosigma elongatum* W. Smith var. *karianum* (Grun.) Cleve.**

Length 167.2µ, breadth 20µ

Habitat: On moist soil (VR)

Khandbara (19.7.1998)

Distribution: M.S. Dhorkin, Pallod (Sarode and Kamat, 1984)

CALONEIS Cleve.

***Caloneis bacillum* (Grun.) Cleve.**

Length 20µ, breadth 4.5µ, striae 22-24 in 10µ

Habitat: On cement wall in college campus(C)

Navapur (28.8.1998)

Distribution: M.S. Lonavala(Gandhi, 1962b), Jalna, Osmanabad(Sarode and Kamat, 1978), Nagpur(Sarode and Kamat, 1980a), Wardha(Sarode and Kamat, 1983a), Kolhapur, Dhule, Mahad, Aurangabad(Sarode and Kamat, 1984), U.P. Lucknow(Prasad and Jaitly, 1986), River Alaknanda(Nautiyal et.al., 1996), J&K Kashmir Valley, Ladakh(Compere, 1983), Ladakh(Kant and Gupta, 1998), K.S. River Kapila(Somashekar, 1984), Bi. Bhagalpur (Saha, 1986)

***Caloneis bacariana* (Grun.) Cl.**

Length 45µ, breadth 8µ, striae 22 in 10µ

Habitat: Submerged in small pond (RR)

Samode (26.3.1998)

Distribution: M.S. Osmanabad, Aurangabad(Sarode and Kamat, 1979), Wardha, Gangapur(Sarode and Kamat, 1983a), Kolhapur, Nagpur, Pavnar, Jalna, Bhir, Paithan, Bhusawal, Dhule, Aurangabad(Sarode and Kamat, 1984),Khandesh(Nandan and Borse, 1996), U.P. River Alaknanda(Nautiyal et al., 1996)

***Caloneis permagna* (Bail.) Cleve.**

Length 80µ, breadth 39µ

Habitat: From dead pond(C)

Kondaibari (1.8.1998)

Distribution: M.S. Jalna, Pali (Sarode and Kamat, 1978), Nagpur (Sarode and Kamat, 1980a), Chandrapur (Sarode and Kamat, 1984), Khandesh (Barhate and Tarar, 1983)

***Caloneis silicula* (Ehr.) Cleve. var.*tenuis* (Haustedt) Mayer.**

Length 51.4µ, breadth 10.6µ

Habitat: Pond near river (RC)

Sakri (1.10.1998)

Distribution: M.S. Aurangabad (Sarode and Kamat, 1980b), Bi. Bhagalpur (Kumar and Saha, 1993)

***Caloneis silicula* (Ehr.) Cleve. var.*truncatula* (Haustedt) Mayer.**

Length 29µ, breadth 9µ, striae 18-20 in 10µ

Habitat: On moist soil near river bank(C)

Dusane (2.7.1998)

Distribution: Wardha (Sarode and Kamat, 1983a), Jalgaon (Sarode and Kamat, 1984)

NEIDIUM Pfitzer

***Neidium affine* (Ehr.) Cleve. [Fig.1]**

Length 25µ, breadth 5µ

Habitat: Rode side ditch(C)

Navapur (8.11.1998)

Distribution: **Not recorded**

***Neidium affine* (Ehr.) Cleve. form *undulata* Grun. [Fig.2]**

Length 35µ, breadth 11µ

Habitat: In muddy water pool (VVR)

Samode (5.7.1998)

Distribution: **Not recorded**

***Neidium dubium* (Ehr.) Cleve**

Length 49.2µ, breadth 18µ

Habitat: On moist soil (RR)

Kondaibari (1.8.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1953), Alibag, Thane (Sarode and Kamat, 1984)

DIPLONEIS Ehrenberg

***Diploneis puella* (Schum.) Cleve.**

Length 18.4µ, breadth 8µ

Habitat: In road side ditch (VC)

Samode (5.7.1998)

Distribution: M.S. Kolhapur (Gandhi, 1958b; Sarode and Kamat, 1984), Bombay (Gandhi, 1962b), Lonavala (Gandhi, 1966b), Wardha, Satnavari, Katta (Sarode and Kamat, 1983a)

***Diploneis subovalis* Cleve.**

Valves 25.4µ long, 14.8µ broad, costae 8 in 10µ, alveoli 16 in 10µ

Habitat: On fresh water *Spongelia* sp. (C)

Pimpalner (5.7.1998)

Distribution: M.S. Bombay: Dahisar (Gonzalves and Gangle, 1949), Bombay (Gonzalves and Gandhi, 1953), Lonavala (Gandhi, 1962b), Nagpur (Sarode and Kamat, 1980a), Jalna, Pali (Sarode and Kamat, 1980b), Wardha, Katta (Sarode and Kamat, 1984), U.P Rohilkhand Division (Chaturvedi, 1985), River Alaknanda (Nautiyal, 1996), T.N. Pykara (Venkataraman, 1939)

STAURONEIS Ehrenberg.

***Stauroneis groenlandica* Ostrup. var. *subquadarata* A.Cl.**

Length 18.6µ, breadth 6.4µ

Habitat: On fresh water *Spongelia* sp. (C)

Pimpalner (5.7.1998)

Distribution: M.S. Nagpur (Sarode and Kamat, 1980a), Chandrapur (Sarode and Kamat, 1983a)

***Stauroneis kirtikarii* Sarode et. Kamat**

Length 36µ, breadth 9µ

Habitat: In stream(C)

Navapur (31.3.1998)

Distribution: M.S. Bhusaval (Sarode and Kamat, 1984)

***Stauroneis phoenicenteron* Ehr. form *capitata* Gonzalves et. Gandhi**

Length 81µ, breadth 15.2µ

Habitat: On moist soil (RC)

Navapur (10.7.1998)

Distribution: M.S. Bombay (Gonzalves and Gandhi, 1953), Katta (Sarode and Kamat, 1983a), W.B. Midnapore (Pal and Santra, 1990)

***Stauroneis opbtusa* Lagerst. var. *nagpurnsis* Sarode et Kamat**

Length 45.5-51µ, breadth 9.5-10.7µ, striae 14-16 in 10µ

Habitat: In puddle (VR)

Navapur (10.7.1998)

Distribution: M.S. Nagpur (Sarode and Kamat, 1980a), Wardha, Akola (Sarode and Kamat, 1984)

ANOMOEONEIS Pfitzer

***Anomoeoneis serians* (Breb.) Cleve. var. *modesta* A. Cl.**

Length 35µ, breadth 7µ

Habitat: Near the edge of stream (VR)

Sakri (1.10.1998)

Distribution: M.S. Khamagaon (Sarode and Kamat, 1984)

***Anomoeoneis sphaerophora* (Kuetz.) Pfitzer.**

Length 64µ, breadth 18.2µ

Habitat: Water stream (RC)

Dusane (2.7.1998)

Distribution: M.S. Bombay(Gonzalves and Gandhi, 1953), Kolhapur(Gandhi, 1958b), Osmanabad, Aurangabad, Bhir(Sarode and Kamat, 1980b), Yeotmal(Sarode and Kamat, 1983a), Aurangabad, Paithan, Kolhapur, Dhule, Karad, Pune, Satara, Alibag, Thana, Mahad(Sarode and Kamat, 1984), U.P. Rohilkhand Division(Chaturvedi, 1985), Rapt river, Gorakhpur(Srivastava and Singh, 1995), J & K Kashmir Valley(Compere,1983), K.S. Mysore(Somashekar, 1984), River Kapila(Somashekar, 1984a), T.N. Vaiyampatti, Madras(Venkataraman, 1939)

Abbreviation used for quantative abundance:-

A-Abundant, VC-Very Common, C-Common, RC-Rather Common, RR-Rather Rare, VR-Very Rare, VVR-Very Very Rare.

DISCUSSION:

- In the case of diatom like *Synedra* Ehren. diurnal variations more or less similar to that of the algae noticed.
- Dominance of pinnate diatoms over the centric diatoms at all the stations indicated that the pinnate diatoms are well adapted to varying nature of sediment.

- Biodiversity amongst algae can be observed in naturally occurring water bodies, such as streams, lakes, semi permanent and permanent ponds.
- Genus *Tabellaria* is rare genus which is not even reported in the monograph "Fresh water Diatoms of Maharashtra" by Sarode and Kamat (1984).

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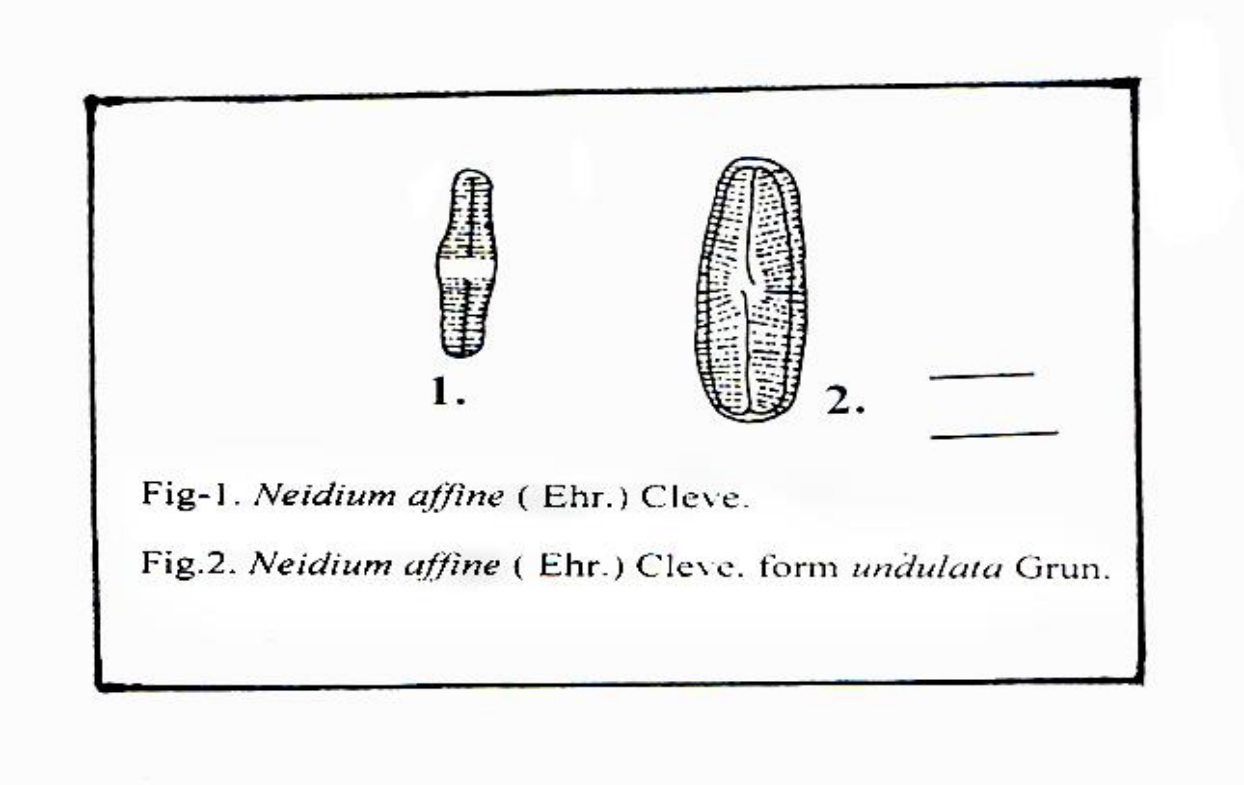

Fig-1. *Neidium affine* (Ehr.) Cleve.

Fig.2. *Neidium affine* (Ehr.) Cleve. form *undulata* Grun.