

Short communication

Taxonomic and comparative report of marine centric diatom *Pseudosolenia calcar-avis* (Bacillariophyceae) after tasman spirit oil spill, the affected area of North Arabian sea

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In present study brief account of *Pseudosolenia calcar-avis* has been presented, samples were collected during a survey that was carried out along the Northern Arabian Sea after 2003 Tasman Spirit Oil Spill. Present findings were also compared with other local and regional studies.

Pseudosolenia calcar-avis is a very important and commonly occurring centric diatom which may dominate the phytoplankton community structure (Sunesen & Sar 2007). This diatom was previously included in genus *Rhizosolenia* but due to asymmetric valves, absence of otaria and coiled rimportula (Round *et al.* 1990) they have latterly been transferred in genus *Pseudosolenia* (Karpinsky 2010). This genus is exclusively present in warmer waters where as infrequent reports have also been observed from temperate zones (Yun & Lee 2011). Moreover manifestations suggest that they may also be found in temperate to colder waters (Hernandez-Becerril *et al.* 2010). Reports from Mediterranean region revealed that this species was found in nutrient poor conditions of summer months (Pearce 1998). Previous records from North Arabian Sea showed that this species occurred 7.14% of the total biomass of centric diatoms (Tabassum & Saifullah 2012). In this study a brief account of description of *Pseudosolenia calcar-avis* have been presented during a survey carried out along the Northern Arabian Sea after an oil spill. Present findings have also been compared within the same area and other regions as well.

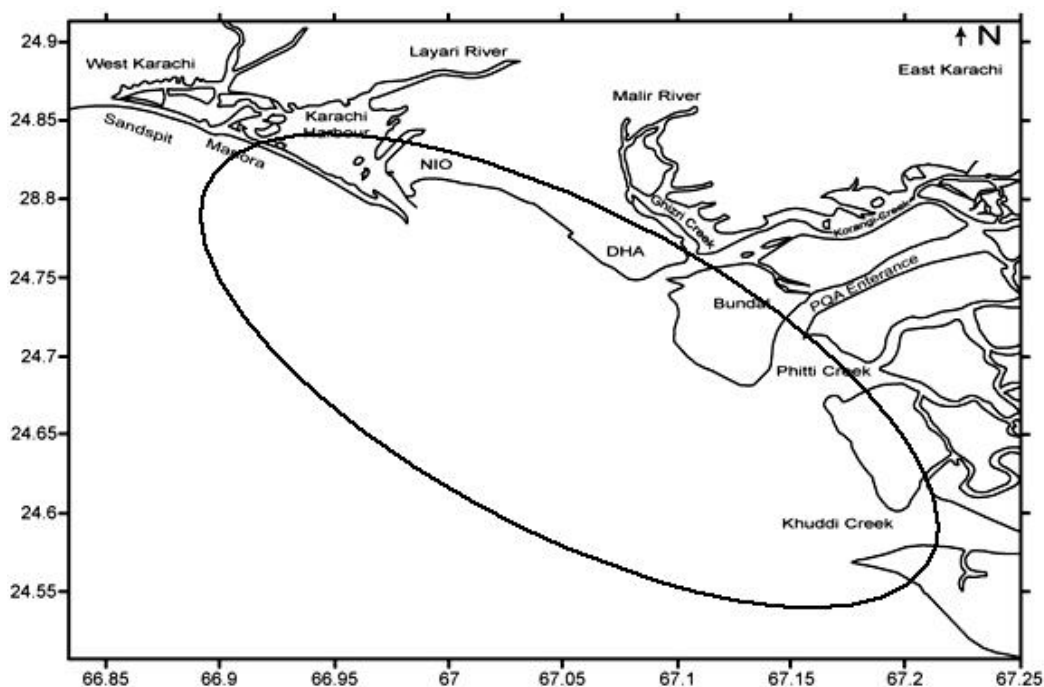


Figure 1. Map showing Tasman spirit oil spill sampling site in Northern Arabian Sea.

Phytoplankton samples were collected from Sea view, Karachi harbor, part of Northern Arabian Sea bordering Pakistan after an oil spill named “Tasman Spirit Oil Spill” (Fig. 1). Samples were then immediately fixed in 10% formalin. Water assessment parameters including pH, water temperature and salinity were also measured. For light microscopy samples were treated with nitric acid and HCl to remove organic matter and rinsed with distilled water to desalinize and then cleaned material were observed using LABX N-400M.

Pseudosolenia calcar-avis (Schultze) Sundstrom, 1986: 95, figs 40-46, 247-257. **(Fig. 2)**

Rhizosolenia calcar-avis Schultze., Hasle & Syvertsen, 1997, p. 160, Plate 30 (158); Sunesen & Sar, 2007, p. 637-640, Fig. 68-81 (638); Hernandez-Becerril, 2010, pp. 100, Figs. 16-21(p. 98); Karpinsky, 2010, pp. 82, Fig. 1; Yun & Lee, 2011, pp. 307, Figs. 4 (A-H) (pp. 308); Tabassum & Saifullah, 2012, pp. 73, Fig. 38.

Cylindrical, elongated, large, solitary cells with apical axis ranges from 80–108 µm. Conical valves show asymmetric appearance ends with curved claw like process; narrow contiguous area with sigmoid depression runs from process towards the valve; bands scale like in 2–3 columns.

Apical axis: 80–108 µm

General Distribution: Buenos Aires coastal waters, Argentina (Sunesen & Sar 2007); Mexican Coast (Hernandez-Becerril 2010); Korean Coastal waters (Yun & Lee 2011); Northern Arabian Sea (Tabassum & Saifullah 2012).

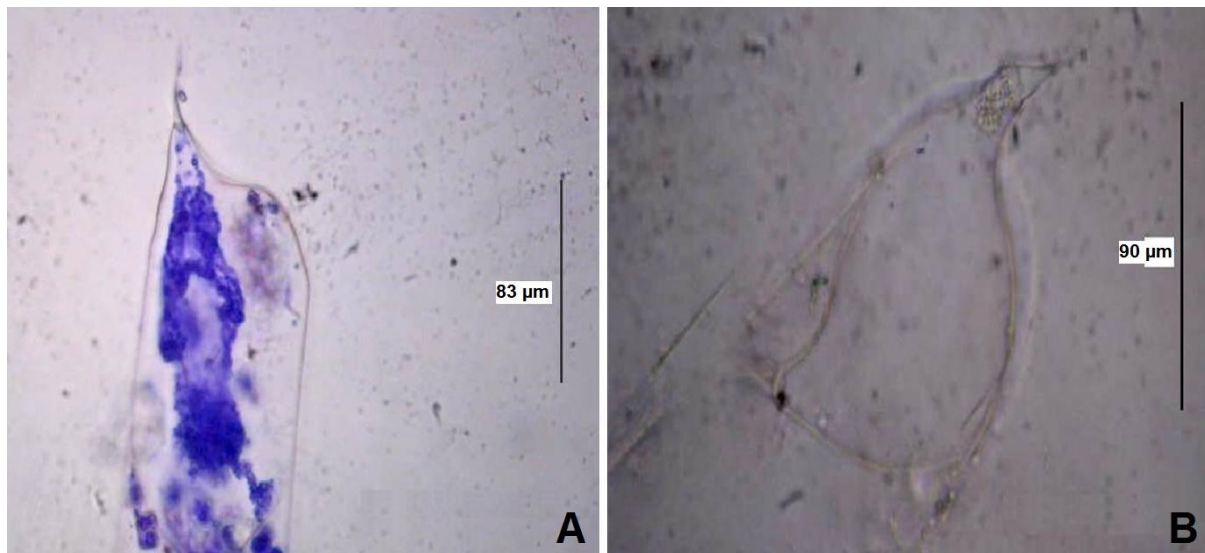


Figure 2. Girdle view of *Pseudosolenia calcar-avis*

The study reveals the presence of marine planktonic diatom *Pseudosolenia calcar-avis* from the Northern Arabian Sea that was affected by the hazardous incident of Tasman Spirit Oil Spill. *Pseudosolenia calcar-avis* has been previously recorded from Northern Arabian Sea bordering Pakistan (Tabassum & Saifullah 2012) but in present study a marked difference in term of diameter of the specimens have been observed (Table 1). It is concluded that this discrepancy in morphometric observation is related to the disaster of Tasman Spirit Oil Spill, as the crude oil contents has effect on metabolism and growth of diatoms (Huang *et al.* 2010) and large sized specimens have been recorded after the spill, so the discrepancy in morphometric observations in present studies is justified and reason is oil pollution.

Table 1. Comparison of morphometric data among *Pseudosolenia calcar-avis* of present study with the previous records.

	Cupp (1943)	Hendey (1964)	Moazzam (1973)	Hasle & Syvertsen (1997)	Hernandez-Becerril <i>et al.</i> (2010)	Tabassum & Saifullah (2010)	Yun & Lee (2011)	Present study (2005)
Region	Pacific Ocean	Atlantic Ocean	North Arabian Sea	-----	Tropical Mexican Pacific	North Arabian Sea	Koren Coastal waters	North Arabian Sea
Apical axis	6 µm to 53 µm	35 µm to 70 µm	10 µm to 50 µm	45 µm to 190 µm	29 µm to 55 µm	25 µm to 87 µm	9.3 µm to 90 µm	80 µm to 108 µm

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