

THE NEW PHYTOPLANKTON RECORDS FROM TURKEY

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Abstract

From the samples taken from during the period of 1998-1999 in the frame of TUBITAK (the scientific and technological research council of Turkey) project, 37 phytoplankton species were recorded for the first time. Among these organisms as a toxic phytoplankton *Prorocentrum mexicanum* which causes "ciguatera" have been recorded for the first time in Izmir Bay, Turkey. The other toxic species; *Heterosigma* cf. *akashiwo* and *Gymnodinium* cf. *mikimotoi* which have well-known ichthyotoxic effects were reported in the scientific journal. Whether toxic or not all species were particularly abundant in the hypereutrophic Inner section and eutrophic Middle section of the Izmir Bay in April and September 1998.

Keywords : Aegean Sea, Phytoplankton, Eutrophication, Coastal Waters.

Despite the researches on phytoplankton have been carried out in Turkey for almost half a century, the continuity of researches and publication of results obtained have been restricted by a series of different reasons and hence, the information to be collected and or harvested from these studies have been inheritedly a hard task to be dealt with because of locality, incompleteness and discontinuity and discreteness. However, Koray and his colleagues has achieved to review and gather those information in great deal and they have established a database on phytoplankton of Turkish seas (<http://bornova.ege.edu.tr/korayt/plankweb>). Koray and his colleagues have a prominent roles in establishment of such a comprehensive. Regarding the sampling area the present study, a total of about 187 phytoplankton species (94 Dinoflagellate, 84 Diatom, 2 Dictyochaphyceae, 2 Euglenophyceae, 1 Cryptophyceae, 3 Ebriidae, 1 Raphidophyceae) have been reported in Izmir Bay.

Izmir Bay is one of the most polluted estuaries in the Mediterranean Sea [1, 2]. The untreated waste waters originating from the increasing population (exceeding 3 million) together with substantial industrial development, intensive harbor activities and agriculture in and surrounding areas of the bay have exerted considerable pollution loads particularly to the Inner Section. Therefore, significant phosphorus (P), nitrogen (N) and iron (Fe) enrichments synchronously and/or simultaneously have been observed in this section [1]. Phytoplankton blooms every year starting from spring to the late autumn including harmful red tides that are currently spreading and increasing. The first record for red tide in the bay was given in the middle of 1950's [3,4]. In this first report given by Numann (1955), mass fish mortality was noted. The frequency of red tide events are in increasing trend in the last two decades. The frequency of occurrence of red tides is closely related to progressive increasing in the level of eutrophication, as stated by Honjo (1993) [5]. In the bay, *Noctiluca scintillans* forms very commonly red tide, but *Prorocentrum micans*, *P. triestinum*, *Ceratium* sp., *Nitzschia* sp., *Pseudo-nitzschia seriata* group, *Thalassiosira* sp., *Eutrep-tiella* sp. and *Mesodinium rubrum* are also potent causative organisms [6].

References

- 1 - Bizsel N. and Uslu O., 2000. Phosphate, nitrogen and iron enrichments in the polluted Izmir Bay, Aegean Sea. *Mar. Env. Res.*, 49:101-122.
- 2 - Bizsel N. and Bizsel K.C., 2001. The occurrence and behaviour of phosphate fractions in Izmir Bay, Aegean Sea. *Hydrobiologia*, 450:5-18.
- 3 - Numann W., 1955. İzmir Körfezi'nde "Balık kırlması"hadisesi. *Hidrob. Mec.*, Ser. A, 3(2): 90-93.
- 4 - Acara A. and Nalbandoğlu U., 1960. Preliminary report on the red tide outbreak in the Gulf of Izmir. *Rapp. p.-V. reün. Com: Int. Explor. Scient. Mer. Mediterr.*, 15(3): 33-38.
- 5 - Honjo T., 1993. Overview on bloom dynamics and physiological ecology of *Heterosigma akashiwo*. In: Smayda T.J. and Shimizu Y. (eds.), *Toxic phytoplankton blooms in the Sea. Fifth international conference on toxic marine phytoplankton*, Newport, Rhode island, USA. Elsevier, pp 33-41.
- 6 - Koray T., Buyukisik B., Parlak H. And Gokpinar S. 1992. İzmir körfezi'nde deniz suyu kalitesini etkileyen tek hücreli organizmalar:Red tide ve diğer aşırıölme olayları. *Doğa, Tr. J. Biology*, 16:135-157.