

Editorial

“Diatoms: highly diverse and ubiquitous key-actors in biogeochemical cycles and aquatic ecosystems’ productivity”

Proceedings of the 30th International Congress of the Association of French Speaking Diatomists (30th ADLaF meeting, September 2011, Boulogne-sur-Mer, France)

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Diatoms are unicellular autotrophic eukaryotes characterised by an ornamented silicified cell “armor” (called frustule; Hamm & Smetacek, 2007). They represent one of the largest, most diverse (probably well over ca. 10⁵ species), of a wide range of sizes (from less than 10µm to 200µm for single cells, up to more than 1mm for chain-forming species), biogeochemically and ecologically most significant groups of photosynthetic organisms on Earth. They are present and often dominant in the plankton and benthos of most water systems, from ocean and coastal marine to freshwater systems, both benthic and pelagic, some of them found also in temporarily wet terrestrial systems (Kooistra *et al.*, 2007), others leaving as endosymbionts of protists.

The 30th International Congress of the Association of French Speaking Diatomists was held in Boulogne sur Mer, at the French National Center for the Sea (Nausicaa), by September 6-8, 2011. This meeting was associated to the Symposium on Geobiology and Environments of silica biomineralizers which took place from September 4-7, 2011 in Villeneuve d’Ascq (Université of Lille 1) and which had a dedicated session to diatoms, as major silicifiers.

Over 70 diatom taxonomists, ecologists, limnologists, paleontologists, oceanographers, as well as environmental managers and naturalists from France, Belgium, Luxembourg, Spain, Tunisia, Portugal, Canada, Mexico, Puerto Rico, Bolivia, Brasil and China gathered together during these three days, addressing different topics: i) taxonomy of marine and freshwater diatoms ii) biogeography and biodiversity in temperate and tropical aquatic systems; iii) the use of diatoms for addressing water quality issues, including the application of new technologies, the application and definition of indices (bio-indicators); iv) eco-physiology of diatoms; v) ecotoxicology issues; vi) paleoecology and biostratigraphy.

Twenty two oral communications and 12 poster presentations were scheduled during these three days of meeting. A field trip to the Cape Gris Nez (by the Strait of Dover – Pas de Calais) was held during the second day.

The meeting was co-sponsored by the Laboratory of Oceanology and Geosciences – French National Research Council (CNRS), University of Littoral (ULCO) and University of Lille 1 (UL1), by the Artois-Picardie Water Agency (AEAP) and Nausicaa, with the participation of EDEN 62 for guiding the field trip.

The conference was organized by the invited editors of this special issue in Cryptogamie-Algologie (Luis Felipe Artigas – LOG ULCO and Jean Prygiel – AEAP), with the help of members of the Scientific Committee (Luc Ector – PRC Gabriel Lipmann and Frédéric Rimet – UMR Carrel INRA) and Organizing Committee (Christophe Lesniak and Monika Michel – AEAP, Lucie Courcot – LOG ULCO).

In the present special issue of *Cryptogamie, Algologie*, the reader will find a selection of studies presented during the Congress, addressing the taxonomy of diatoms from ocean pelagic systems (Hernández-Becerril *et al.*, this issue), from freshwater temperate and tropical systems, including collection records (Morales *et al.* and van de Vijver *et al.*, this issue), as well as studies on diatoms collected in estuarine sediments (Novais *et al.*, this issue) and in aerial habitats (Wetzel *et al.*, this issue). The two last contributions address ecotoxicology issues affecting diatoms, from herbicide (Marcel *et al.*, this issue) to metals (Masmoudi *et al.*, this issue).

We would like to thank all participants to the 30th ADLaF International Congress as well as all contributors to this special issue for the richness and diversity of the topics addressed concerning these tiny but important, ubiquitous and highly diverse photosynthetic micro-organisms.

REFERENCES

- KOOISTRA H.C.F., GERSONDE R., MEDLIN L.K. & MANN D.G. 2007 — The origin and Evolution of the Diatoms: Their Adaptation to a Planktonic Existence. *In*: Falkowski P.G. & Knoll A.H. (ed.), *Evolution of Primary Producers in the Sea*, Amsterdam, Boston, Heidelberg, London, New York, Oxford, Paris, San Diego, San Francisco, Singapore, Sydney, Tokyo, Academic Press, pp. 207-249.
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