Problems on drinking water related to toxigenic Cyanobacteria: some cases studied in Argentina

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With 4 figures

Abstract: The massive presence of harmful Cyanobacteria in freshwaters has been acknowledged since 1878 when the death of a series of farm animals associated with a bloom of Nodularia spumigena was registered in Australia. In Argentina, these phenomena are known since 1944 when in the Bedetti shallow lake (Province of Santa Fe) about 1000 farm ducks died as a consequence of the ingestion of water after a mixed bloom of various species of blue green algae developed.

The anthropic impact on aquatic ecosystems favours eutrophication and, combined with rising temperatures due to global climate change, promotes the development and expansion of harmful algal blooms. Cyanobacterial blooms are now widely recognised as a serious water quality problem with regard to both recreational and drinking water. In Argentina, several toxigenic Cyanobacteria have been reported and associated with blooms, being the most common genera Microcystis and Dolichospermum (Anabaena), while the most common cyanotoxins detected are microcystins.

In this article we present four case studies related with the presence of toxigenic Cyanobacteria in drinking water, involving Snowella lacustris, Microcystis aeruginosa and species of Dolichospermum (Anabaena).

Keywords: toxigenic Cyanobacteria, drinking water.

Introduction

The constant rise in human population leads to an increase of certain activities which have a major impact on freshwater environments, causing their deterioration. Human activities include the discharge of wastewater, impounding of rivers, off-river storage impoundments and other activities that alter the original conditions of natural waters and force the aquatic systems through the incorporation of an excess of nutrients and organic matter (Carmichael 2008). Anthropogenic pressures lead to ‘cultural eutrophication’ which remarkably alters the

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