



Conference Abstract

Pilot assessment of cyanotoxins as potential risk factors for cancer in Bulgaria

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Received: 22 Aug 2017 | Published: 24 Aug 2017

Citation: Stoyneva-Gärtner M, Uzunov B, Dimitrova P (2017) Pilot assessment of cyanotoxins as potential risk factors for cancer in Bulgaria. *BioDiscovery* 20: e20501. <https://doi.org/10.3897/biodiscovery.20.e20501>

Abstract

Cyanoprokaryotes (=cyanobacteria, blue-green algae) are the most ancient oxygen-producing phototrophic microorganisms, spread all over the Globe, which form the important basis of different food chains in aquatic and terrestrial habitats. However, due to strong anthropogenic pressure during the last decades they are also responsible for causing nuisance algal blooms in different water bodies with deleterious effects on the mankind and ecosystems mainly due to production of toxic substances (cyanotoxins). Amongst them are the microcystins, nodularins, lyngbyatoxins and aplysiatoxins, known as tumor-promoters with increase of exposure routes through which humans and animals can be placed at risk (Meriluoto et al. 2017). However, the investigations on the relations between the occurrence and development of such diseases with the cyanotoxins and their producers are extremely scarce at a global scale (Yu and Chen 1994, Ueno et al. 1996, Fleming et al. 2002, Svircev et al. 2009, Drobac et al. 2011, Labine et al. 2015). During the last 15 years cyanoblooms and microcystins, nodularins and saxitoxins were detected in 16 different Bulgarian freshwater bodies, including some drinking-water reservoirs (Stoyneva-Gärtner et al. 2017). Amongst the detected toxins some new forms were recognized by their characteristic spectra (Pavlova 2007, Pavlova et al. 2007), and, more recently, a new potential producer of lyngbyatoxin was found in the Black Sea (Stoyneva et al. 2015). The poster shows a pilot assessment of the spread of cancer distribution and mortality vs. spread of cyanoblooms and cyanotoxins in Bulgaria.

The pilot assessment is made on the basis of comparison of the general regions of spread of cyanotoxins in Bulgarian water bodies and toxin-producing cyanospecies during the period 2000-2017 (Stoyneva-Gärtner et al. 2017) with the spread of cancer in Bulgaria (e.g. Valerianova et al. 2015).

The comparison shows general conformities between the spread of the “most dangerous” water bodies and main regions of cancer diseases in the country. The results obtained served as a basis for a new project proposal which aims at a deepening of the studies for improvement of prevention of cancer in the country.

Keywords

algae, cyanotoxins, harmful blooms

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Presented at

World Biodiscovery Congress 2017, 17-19 July 2017, Sofia

Conflicts of interest

Authors declare that there is no conflict of interests regarding this publication.

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