

Emerging Pollutants: Protecting Water Quality for the Health of People and the Environment

Assessment of Harmful Algae as an Emerging Pollutant of Domestic Water Supply from

Rainwater Harvesting Facilities in Sudan

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■ The rural population in Sudan represents around 67.1% of the total population and 55% lives in areas

apart from the Nile system.

 Considerable percentage of this population depends on surface rainwater harvesting from Hafir (Shallow Water Pond) and earth dam reservoirs for domestic and drinking water supply.

- These sources are susceptible to contamination according to the surrounding livelihood activities.
- Certain environmental conditions; like warming and excess nitrogen and phosphorus in water bodies can intensify algae growth, causing algal blooms.
- When some types of algae blooms are large and produce chemicals, or toxins, the event is called a harmful algal blooms (HABs).





Aim of the Work, Methods and Some Physiochemical Characteristics

• The aim of this paper is to classify the types of algae and identify the toxins' producing algae species as well as

its relationship with Physico-chemical characteristics.

 Water samples were collected during the wet and dry seasons from eleven sites from five states (Gazira, Khartoum, North Kordofan, Gadarif and Sinnar) based on different practiced activities such as agriculture, rangeland and mining.

- Laboratory tests were undertaken for algae and physiochemical parameters according to Sudanese standards 2016.
- Turbidity was ranged between 13.9 3068 NTU and 10.9 180.6 NTU for dry and wet seasons respectively.
- Temperature ranged between 22.8 26.3°C during different seasons and sites.
- Results shown that, there are a clear variation in physiochemical quality between different sites and different seasons.

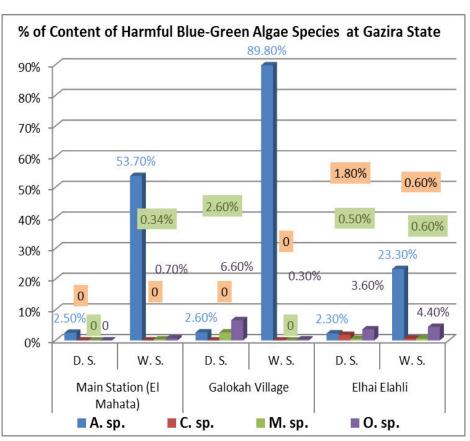


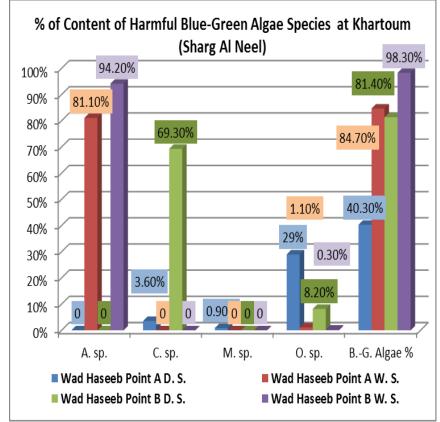


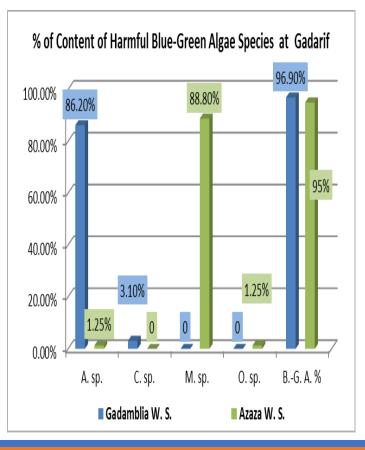
Results: Distribution Pattern and % Content of Harmful Blue- Green Algae (B.-G. A.)

D.S. = Dry Season (November - May)

W.S.= Wet Season (June – October)

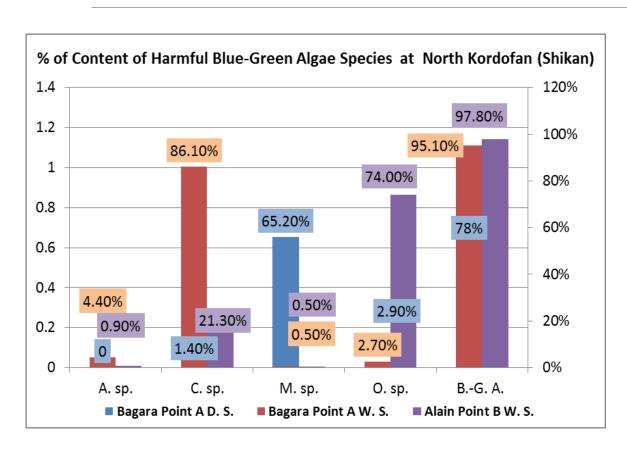


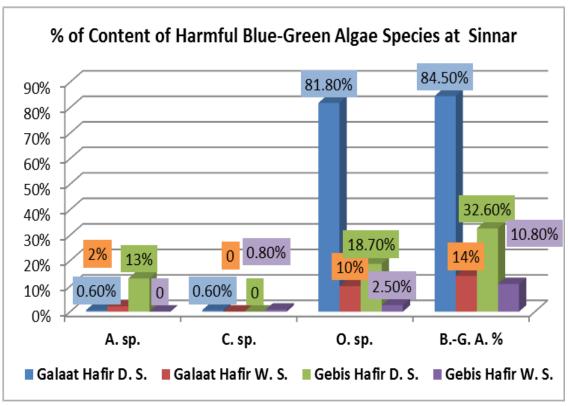






Results







Conclusions and Recommendations

- The Sudanese are at high risks for contracting waterborne diseases.
- Protection of surface rainwater harvesting facilities from pollution by establishing onsite water treatment units is a must.
- Comprehensive water quality monitoring is necessary to improve natural resource management, maintain sustainable ecosystems, and protect public health.
- Monitoring of Toxins produced by Blue-Green Algae (Cyanotoxins) is very important.
- Collaborative efforts are encouraged at both the international and national levels to be exerted for healthy water sources, healthy people and healthy environment.
- Sustainable water resources management and development through capacity development, community engagement, political wills will accelerate achieving the SDG6 by 2030.



Thanks

THANK YOU