EDITORIAL

Current potentials and applications of cyanobacteria

Sophie Jones*

Sophie Jones. Current potentials and applications of cyanobacteria. J Environ Geol. 2021;5(3):1.

EDITORIAL

Continual population growth, as well as mounting concerns about the energy crisis, food security, disease outbreaks, global warming, and other environmental difficulties, necessitates a natural solution. Cyanobacteria, they can only be grown with basic materials and have a basic genome. Cyanobacteria have been found to produce a wide range of bioactive substances. Furthermore, the extraordinary growth rate of cyanobacteria allows for its potential use in a wide range of industries including bioenergy, biotechnology, natural goods, medicine, agriculture, and the environments blue-green algae, is one of the potential resources. We have highlighted the potential applications of cyanobacteria in several fields of science and development in this editorial, with a focus on their usage in the production of biofuels and other useful co-products.

The constant growth of the human population, as well as pollution from a variety of anthropogenic activities, has resulted in a variety of measures to achieve sustainability goals. Growing concerns about energy shortages, food insecurity, disease outbreaks, global warming, and other environmental issues necessitate a solution that is both economically and environmentally viable. Cyanobacteria are thought to be the first oxygenic photosynthetic microbes on Earth, and they have helped to produce oxygen in the atmosphere for the past 3 billion years. Blue-green algae are main photosynthetic microorganisms that can be found in a variety of settings, including rivers, seas, soil, and bare rock. Individual cells, colonies, and filaments are all examples of microorganisms. Although cyanobacteria are minute in nature, when they form colonies, such as crusts or blooms, they can be seen.

Cyanobacteria have biological systems that allow them to adapt to changes in the environment and develop rapidly as a dense population. Their rapid development rate, on the other hand, is influenced by nutrient levels, biotic variables, climate change, and global warming. Cyanobacteria have a number of distinctive properties that have motivated researchers and experts to consider its possible industrial application around the world. As a consequence of oxygenic photosynthesis, cyanobacteria can synthesise molecular oxygen. In addition, compared to traditional food crops, they can develop at a faster rate and have a larger output potential per acre. They can be cultivated on non-productive and non-arable soils and do not compete with land-based food or feedstock resources for cultivation. They may thrive in a variety of aquatic environments, including freshwater, brackish water, and industrial effluent. The cyanobacterial population is rapidly rising, as is its invasion of freshwater and marine ecosystems. One of the most important factors to consider while managing cyanobacteria in various ways is their tremendous growth rate. Cyanobacteria are also known for creating a wide range of bioactive substances, including cyanotoxins such as microcystins, anatoxins, and saxitoxins, among others. Cyanobacteria develop toxic blooms as a result of this extraordinary property, posing a risk to human health. Several studies have been carried out in order to create monitoring tools for such blooms as well as effective mitigation techniques for their excessive expansion. Some cyanotoxins, on the other hand, have the potential to be exploited in the development of cancer therapeutics. One of the most potential uses for cyanobacteria is as a source of energy. Scientists are looking for ways to discover environmentally acceptable energy supplies from nature as a result of growing pollution problems created by fossil fuels. The manufacture of biofuel from cyanobacteria has also been a hot topic among researchers. Because cyanobacteria have a relatively basic genome, scientists can more easily manipulate their genes to discover and identify more beneficial ingredients for biofuel extraction. As a result, massive mass production of cyanobacteria on a commercial scale could be achievable in the near future, with great benefits, as they may be utilised to make biofuels and other useful co-products like antioxidants, biofertilizers, biodegradable polymers, vitamin supplements, and colour compounds. We will focus on the current potential of cyanobacteria that can result in increased sustainability due to their multiple application potentials on a wide variety of topics.

Department of Environmental Geologist, University of Johannesburg, Africa

Correspondence: Jones S, Current potentials and applications of cyanobacteria, E-mail: Sophiejones01@gmail.com
Received: May 01, 2021, Accepted: May 11, 2021, Published: May 20, 2021