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A review of toxic and non toxic cyanobacteria species occurrence in water supplies destined for maize meal production process: A case study of Vhembe district

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Cyanobacteria have been part of the human diet for thousands of years. Cyanobacteria can multiply quickly in surface waters and form blooms under favorable conditions (temperature, intense light, high pH, and increased nutrients (phosphorous and nitrogen) availability). Consumption of edible cyanotoxins such as Spirulina may reduce risks of cataracts and age-related macular degeneration. Sulphate polysaccharides exhibit antitumor, anticoagulant, anti-mutagenic, anti-inflammatory, antimicrobial, and even antiviral activity against HIV, herpes, and hepatitis. Human exposure to cyanotoxins occur in various ways, however, the oral route is the most important. This paper seeks to present a review on cyanobacteria contamination of water and food and implications for human health. Particularly, examining the water quality used during maize seed that passes through mill grinding processes. To fulfill the objective, this paper starts with a theoretical framework on cyanobacteria contamination of food that will guide the review of the present paper. Methods for decontaminating cyanotoxins in food are currently available. Therefore, physical, chemical, and biological methods for treating cyanotoxins are reviewed. Furthermore, methods utilized for detecting and identifying cyanobacteria in water and food were also informed. This review indicated various routes through which humans can be exposed to cyanotoxins. Accumulation of cyanotoxins, in food, has raised awareness of the importance of food as microcystins exposure route to the human body. Therefore, this review demonstrates the importance of expanding research on cyanobacteria/cyanotoxin contamination of water and food. This will help to provide information regarding prevention or minimization of contamination of water and food, and also reduction or removal of contamination through treatment processes.

Biography

Mulalo Mutoti has completed his MSc at the age of 29 years from University of the Western Cape and undergraduate studies from University of Venda School of Environmental Sciences. He is now lecturing Hydrology and Water Resources modules in the University of Venda.

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