

## **Phyto-metabolites: Applications in water treatment and safety**

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**Background:** This review researched the use of plant extracts for the treatment and disinfection of water. Data analysis showed that the use of plant materials in water treatment is currently less researched though plants are known to contain secondary metabolites with multi-faceted mechanisms of action. Only about one-fourth of the report used plant extracts in the treatment of water, whereas almost three-quarter reported antimicrobial activities. The need, therefore, remains for further research targeted at applications of plant materials for safe and potable water disinfection and treatment. Seeds and flowers of plants were reported to have been used in about half of the experiments studied (24.53% and 20.75% respectively) while bulb, resin, bark and tuber are less reported. Plant has been underutilised in water treatment and associated product development due to their extract's and extraction complexities, need for purification, lack of standardisation, poor water solubility and slow rate of action. These limitations have created the gap so far and beckon for attention to achieve a broader use of plant in industrial applications. In the use of plant metabolites, modern methodologies such as proteomics, genomics, and metabolomics must be applied to reduce the challenge of phytobiotic standardisation. It is established that possibilities exist for water treatment using plant products but with diverse limitations. These limitations should be improved upon for broader acceptability and industrial application of these products.

**Keywords:** Microbial resistance, Phytochemicals, Water treatment, Standardisation

### **Biography**

Adeeyo Adeyemi is currently affiliated with the department of Ecology and Resource Management, University of Venda, South Africa. He bagged his Bachelor and Masters degree from Ladoké Akintola University of Technology, Ogbomosho, Nigeria before proceeding to South Africa for his PhD. His research interest is the Biotechnology and Green Product development from natural resources. He is currently a Principal Researcher of special project with UNIVEN-WRC South Africa. He has attended many conferences and has several publications to his credit.