

3.3.2. Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years

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9 Portable Electronics and Microsupercapacitors

*Gopakumar G., Sujith K. V.,
Sarayu Jayadevan, and S. Anas*

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9.1 INTRODUCTION

In the present era, we can't even imagine a world without modern portable electronic gadgets like smartphones, wireless devices, smartwatches, laptops, cameras, etc. Nowadays, the significance of flexible, wearable, and portable electronic devices is increasing in various sectors like smart electronics, consumer goods, sports, mobility, security and defence, medical and biomedical, green environment, clean energy, etc. [1–3]. Smart devices launched recently include not just computers or smartphones but every component of smart home technology.

Smart electronic devices generally require huge energy and need to be powered by efficient energy storage devices [2]. Conventional batteries help devices run for a long time on a single charge. The expeditious growth of smart and portable electronics demands flexible, lightweight, small, and wearable power sources. Capacitors are now becoming a key component of basic portable electronics as well as the most modern smart/hybrid electric vehicles by providing rapid delivery of energy despite their poor storage capacity [4]. Researchers are still working hard towards technologies to increase the storage ability of capacitors, strictly maintaining the green energy protocol. Supercapacitors (SCs) are found to be a better choice for addressing the energy issues of the portable electronic device industry. SCs bring

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Nanophytoremediation: A Promising Strategy for the Management of Environmental Contaminants

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13.1 Introduction

13.1.1 Environmental Contamination

Environmental pollution is a serious issue faced by our planet, and it has become faster in the 21st century. Rapid increase in population growth accompanied with industrialisation accelerates the rate of pollution. Any kind of unwanted transformation in abiotic characteristics of the environment constituents like air, water, and soil can result in a negative impact on the biotic component. Based on the origin of pollutant, environmental contaminants are of two types: natural and anthropogenic. Major environmental pollutions by natural factors include earthquakes, floods, cyclones, volcanoes, etc. In a few cases, human activities strengthen the impact of natural pollution factors such as earthquakes and floods. Unmanaged urbanisation, industrial development, deforestation, etc. are the main anthropogenic activities that directly cause destruction of the environment and also accelerate the negative impact of natural pollution factors. Different kinds of pollutants (majorly due to human activities) are responsible for the deterioration of nature and its affects on the characteristics of land, air, and water. Pollutants like

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11.

Technology Poems and Poems in the Age of Technology**Linu M K***Assistant Professor in English**Department of English**Sir Syed College**Taliaramba***Abstract**

The definition of poetry is innumerable and every single one of them vouches that poetry is an expression of finer emotions, sublime thoughts, highest intellect and creativity capable by man. Technology on the other hand is everything that is not human. So 'technology poem' is an oxymoron. Nevertheless, in the present milieu technology poems are making inroads into literature. What is technology poem? Broadly, any poem that has technology as the theme qualifies to be categorized under this label. But, the tone of these poems differs, as with any other theme. These tones range from resentment to acceptance; from indifference to jubilation; or from a longing for a time before the permeation of technology to active promotion of technology. The present paper titled 'Technology Poems and Poems in the Age of Technology' is an attempt to read technology poems using the tenets of futurism and dromology. It also envisions to understand some of the features and characteristics of technology poems and how it affects the poetic sensibility of the younger generation.

The definition of poetry is innumerable and every single one of these definitions vouches that poetry is an expression of finer emotions, sublime thoughts, highest intellect and creativity of man. Technology on the other hand is everything that is not human. So the term 'technology poem' is an oxymoron. Nevertheless, in the present milieu technology poems are making inroads into literature. What is a 'technology poem'? Broadly, any poem that has technology as the theme qualifies to be categorized under this label. But, the tone of these poems differs, as with any other theme and these range from resentment to acceptance; from indifference to jubilation; or from a longing for a time before the permeation of technology to active promotion of technology.

But there's no doubt about it....,

We're stuck with the gift and the curse of technology....,

It's a sick situation...., both a jinx and an inspiration...., (Martin 3-5))



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Phycoremediation and phytoremediation: Promising tools of green remediation

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A.M. Shackira^a, K. Jazeel^a, Jos T. Puthur^b

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1 Green remediation

Environmental pollution adversely affects the stability of ecosystem and therefore has been the focus of attention for the last few decades. Such pollutants as industrial effluents, automobile exhaust, domestic sewage, heavy metals, radioactive compounds, and various exhausts released by electronics remain in nature and pose great threats to the life on Earth. Researchers are continuously trying to find solutions for the sustainable mitigation of the environmental pollution imposed mainly by anthropogenic activities. Conventional methods, such as the physical removal of contaminants from a polluted site or the chemical treatment of pollutants, affect the area's biodiversity. Moreover, these techniques help change or convert the pollutant from one form to another rather than completely degrading or removing it from the site (Noel and Rajan, 2014). Hence, compared to conventional remediation practices, remediation with different kinds of plants or algae seems to be promising because of its low cost, eco-friendly nature, and easy implementation strategies.

The term *green remediation* broadly indicates the entire category of techniques in which biological agents are used to minimize the pollution of air and water and thereby preserve the ecosystem in a sustainable manner (Singh et al., 2017a,b). In this chapter, green remediation is discussed in terms of two techniques: phycoremediation and phytoremediation. Phycoremediation exploits algae for the detoxification of water bodies, while phytoremediation uses plants to wipe out pollutants or limit their bioavailability in soil or sediment (Berti and Cunningham, 2000; Singh et al., 2017a). In addition to these two strategies, the role of nanoparticles in the process of decontaminating pollutants with the help of plants is also discussed briefly.

Phytoremediation and Biofortification

Strategies for Sustainable Environmental
and Health Management

Nand K. Singh
Shadma Afzal
Tariq Aftab
Editors

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Molecular and Physiological Attributes Regulating Phytoremediation Potential of Plants

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ABSTRACT

Phytoremediation is a widely acknowledged technology that utilizes plants for the reclamation of contaminated environments. For the efficient removal of contaminants, the selection of plant candidates should be based on some criteria like having higher biomass with a well-branched and long root system, high pollutant accumulation capacity, and increased tolerance to the pollutants. Plants exhibit various defense mechanisms against inorganic or organic contaminant stress by augmenting the synthesis of antioxidants,

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