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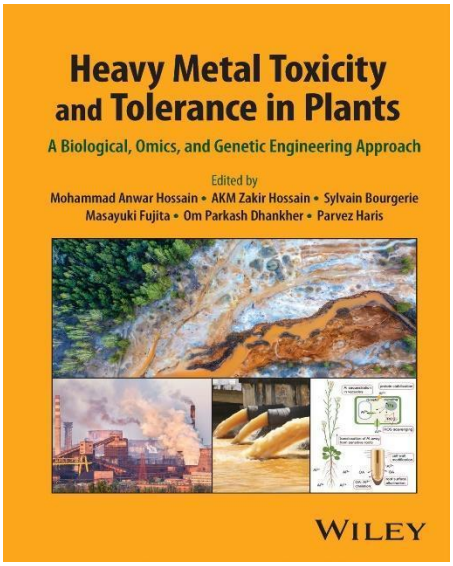

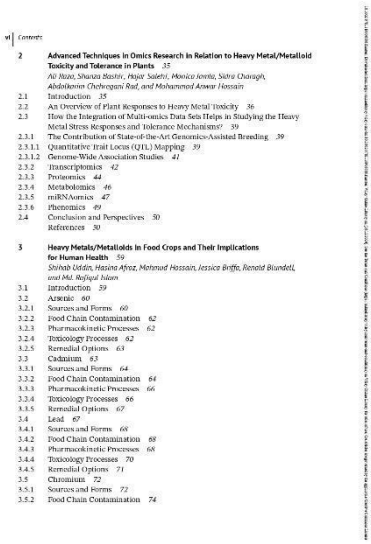

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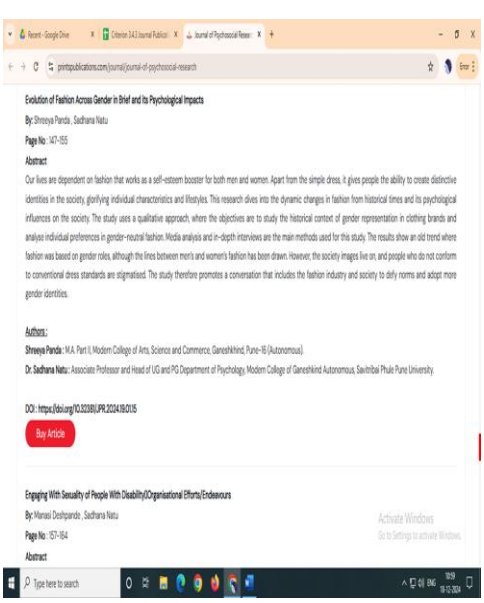

Evolution of Fashion Across Gender in Brief and Its Psychological Impacts

By: Shreeya Panda , Sadhana Natu

Page No : 147-155

Abstract

Our lives are dependent on fashion that works as a self-esteem booster for both men and women. Apart from the simple dress, it gives people the ability to create distinctive identities in the society, glorifying individual characteristics and lifestyles. This research dives into the dynamic changes in fashion from historical times and its psychological influences on the society. The study uses a qualitative approach, where the objectives are to study the historical context of gender representation in clothing brands and analyse individual preferences in gender-neutral fashion. Media analysis and in-depth interviews are the main methods used for this study. The results show an old trend where fashion was based on gender roles, although the lines between men's and women's fashion has been drawn. However, the society images live on, and people who do not conform to conventional dress standards are stigmatised. The study therefore promotes a conversation that includes the fashion industry and society to defy norms and adopt more gender identities.

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Engaging With Sexuality of People With Disability(Organisational Efforts)/Endeavours

By: Manasi Deshpande , Sadhana Natu

Page No : 157-164

Abstract

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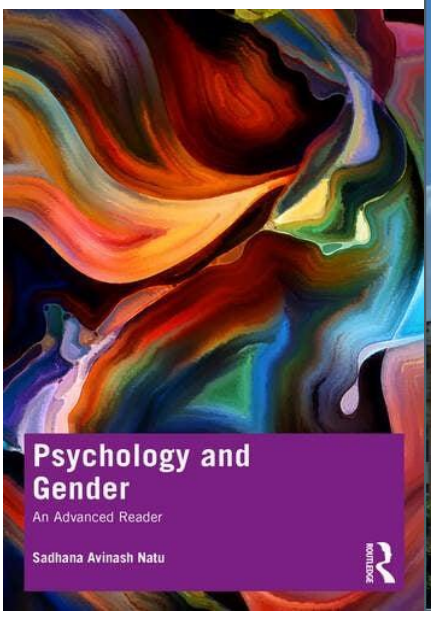

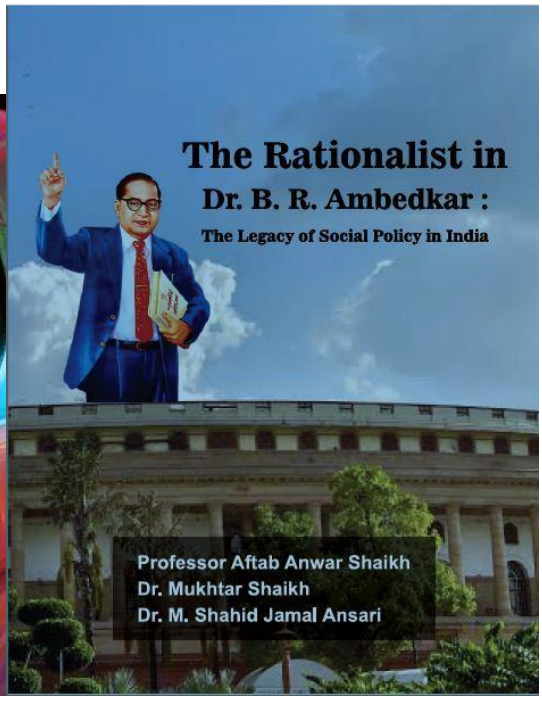

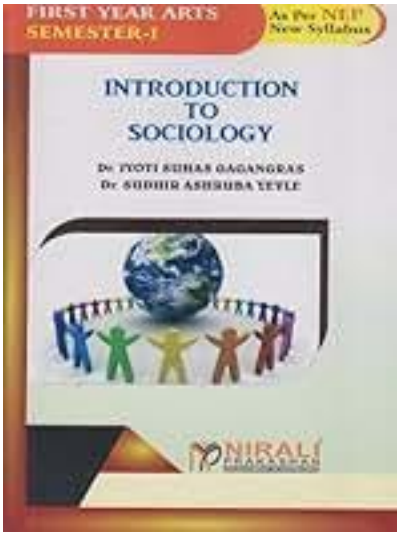
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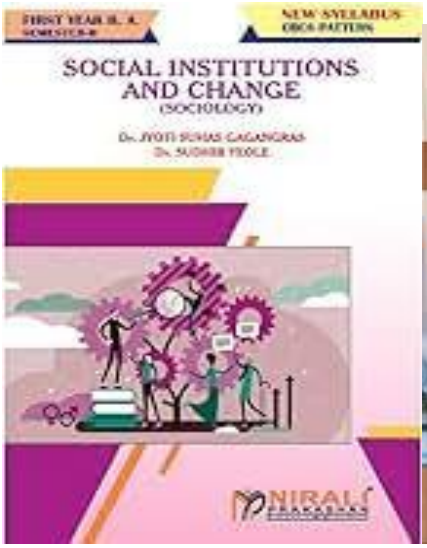
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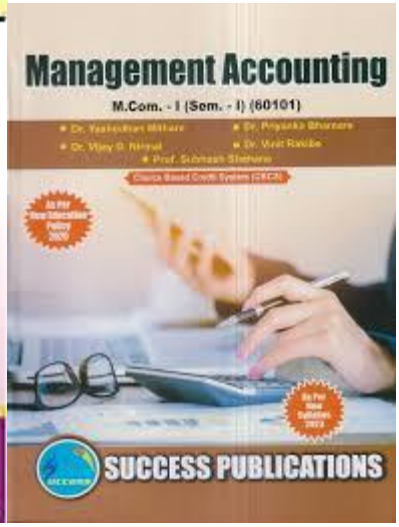
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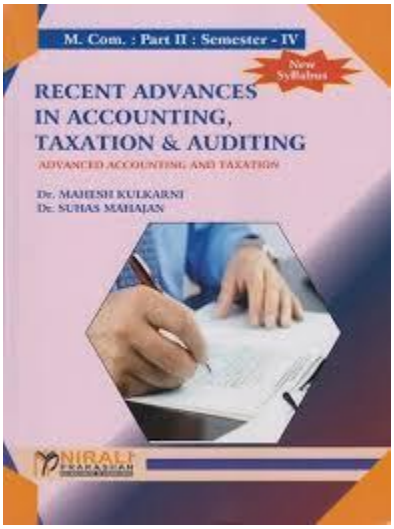
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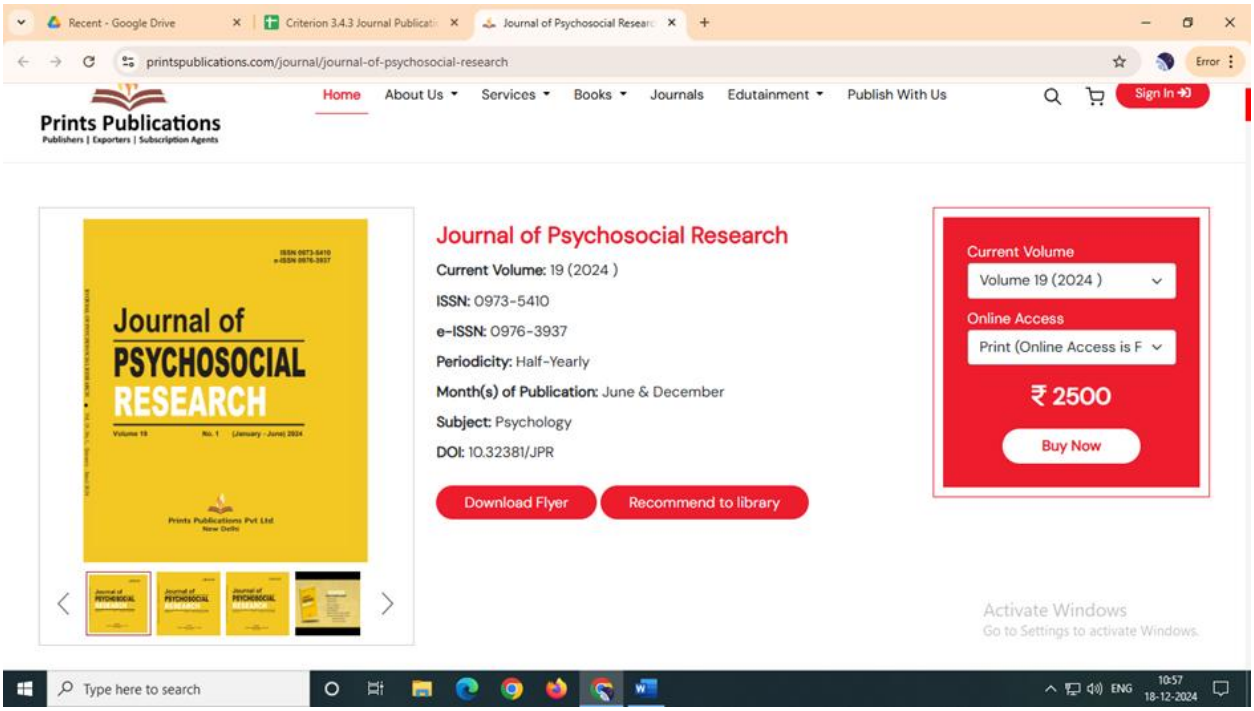

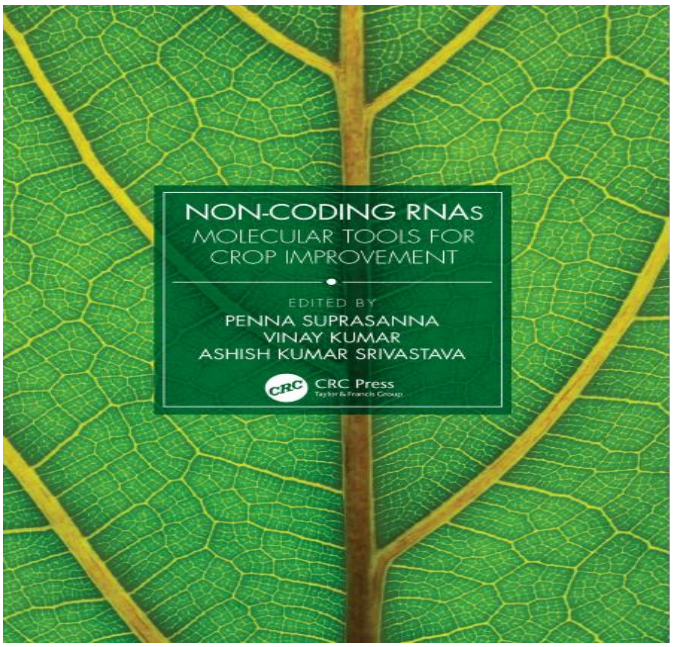

Contents

6 Identification and Characterization of Plant ncRNA Responsive to Climate Change

Suraj Patil, Shrusthti Joshi and Vinay Kumar
Department of Biotechnology, Savitribai Phule Pune University, Pune, India

6.1 INTRODUCTION

One of the greatest challenges faced by agriculturists in this century are the changes in climatic conditions, which include varied weather patterns, amplified temperature ranges, acidification of oceans resulting in a decline in corals, imperiled ecosystems and, ultimately, greatly impacted food security. The Intergovernmental Panel on Climate Change (IPCC) defines climate changes as "a change in the state of the climate that can be identified (e.g., using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer" (Cubasch et al. 2021). It is often observed that the terms *weather* and *climate* are used interchangeably, which is a misconception; weather pertains to short-term changes in local or regional atmospheric conditions, while climate refers to long-term atmospheric conditions.

Agricultural practices and agroecosystems are impacted severely by climate change. The change in temperature and/or precipitation pattern affects the growth and yield of crops, making their maintenance more difficult. Land degradation due to heavy rainfall, drought severity, heat stress, dry spells, wind, sea-level rise and permafrost thaw are other effects of climatic change (Shukla et al. 2019). Food security, food safety and sustainable agriculture development have been on focus and new research is necessary to reduce the impact of climatic change, which causes loss of yield, plant growth and development. This is supported by various studies published between 1980 and 2015 that illustrate the global decline in the yield of wheat, maize and cereal crops by 21%, 40% and 10%, respectively, under drought conditions due to climate change. Further, a decline of yield by 6 ± 2.9%, 7.4 ± 4.5%, 3.2 ± 3.7% and 3.1% in wheat, maize, rice and soybean, respectively, was reported with every $^{\circ}$C rise in global temperature (Asseng et al. 2015; Daryanto et al. 2016; Zhoa et al. 2017; Kim et al. 2019).

Plants being sessile in nature have developed stress-responsive pathways that inherently help them overcome the challenges posed due to changes in their optimal environmental condition due to climate. One of the mechanisms involves extensive use of post-transcriptional regulation by non-coding RNAs (ncRNAs). NcRNAs refer to transcripts that no longer code for proteins and instead play vital regulatory roles that are post-transcriptional in nature. Untranslated transcripts of RNA molecules are marked as ncRNA. The first ncRNA was found in baker's yeast and was characterized as an alanine tRNA (Holley et al. 1965), leading to the discovery of several other regulatory ncRNAs of different shapes and sizes. These controlled RNA interferences (RNAi) play a major role in the adaptation of plants to the abiotic stresses occurring due to climatic changes, conferring them with tolerance for their survival. These ncRNAs are often observed in the gene silencing phenomenon that involves sequence-specific gene legislation encapsulated via double-stranded RNA, resulting in inhibition of protein formation and expression of the gene (Zheng and Qu 2015; Brant and Budak 2018;

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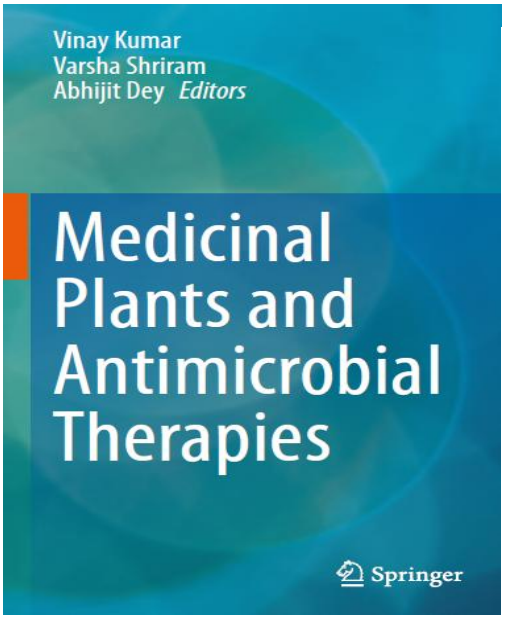

Contents

Chapter 1
One Health Perspectives for Addressing Antimicrobial Resistance

Kawaljeet Kaur, Pramod Barathe, Sagar Reddy, Vartika Mathur, and Vinay Kumar

Abstract Injudicious and irrelevant use of antimicrobials for human health, hygiene, and in animal husbandry and allied fields has induced microbial resistance to wide-spectrum antimicrobials or antibiotics a condition referred to as antimicrobial resistance (AMR). It is challenging for scientists, researchers, and governments to tackle these situations via novel and effective approaches. The increase in the usage of antimicrobials in sectors of animal, aquatic, human, and environment has increased the cases of multi-drug resistant (MDR) pathogens. Major drivers of AMR in these sectors are found to be mobile genetic elements (MGEs) and antibiotic-resistant genes (ARGs) that transfer horizontally from one health sector to another via horizontal gene transfer (HGT) affecting the whole food chain or food web. Considering the current situation of AMR, its emergence, and its prevalence, one health approach has been characterized as a collaborative effort by multiple sectors to develop effective solutions for humans, animals, and environmental health. According to the "One Health Initiative Task Force," the one health strategy advocates for the collaboration of many disciplines working locally, regionally, and worldwide to achieve optimal health for humans, animals, and the environment. This chapter highlights the AMR as a global concern and the effects of excess use of antimicrobial drugs in each one health sectors with major resistance drivers. Furthermore, we discuss the initiated and effective one health strategies for combating AMR in human, animal, and environmental health. Finally, glimpses of the research gap in one health and antimicrobial resistance such as sector-specific financing, research and development investments, and AMR surveillance have been addressed.

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Chapter 2

Plant Essential Oils as Potent Antimicrobials

Sagar Reddy, Kawaljeet Kaur, Pramod Barathe, Varsha Shriram, Atish T. Paul, and Vinay Kumar

Abstract Antimicrobial resistance (AMR) is spreading at an alarming rate, reducing the effectiveness of antibiotics and producing undesirable results such as increased mortality and significant economic loss. Public health is seriously threatened by this global problem, which restricts our capacity to treat common infections and increases risk for vulnerable groups. To address this expanding issue, a novel and effective antimicrobial agent or treatment strategy is needed. Essential oils represent an important source of a diverse range of bioactive constituents with potent antimicrobial activity. Wider acceptance due to its traditional use, lower toxicity, and ability to target multiple determinants of resistance makes essential oils a potent candidate for effectively tackling AMR and eradicating drug-resistant pathogens. Essential oil-loaded nanomaterials have also shown improved efficacy in treating antimicrobial resistance due to increased bioavailability, stability, and solubility and reduced degradation of the active principles of essential oils. Furthermore, combining essential oils with antibiotics has a synergistic impact, helping to revitalize an otherwise depleted antibiotic arsenal. This chapter gives a comprehensive summary of the antibacterial properties of essential oils and their active principles. The chapter also highlights the major bacterial AMR-determinants targeted by plant essential oils besides discussing the successful experiments on the combination of essential oils with antibiotics and nanomaterials for combating drug-resistant microbes.

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Chapter 8

Application of Metabolomics for the Discovery of Potent Antimicrobials from Plants

Pramod Barathe, Sagar Reddy, Kawaljeet Kaur, Varsha Shriram, and Vinay Kumar

Abstract One of the major goals of studying metabolome and metabolism has long been to find biomarkers for disease diagnosis and prognosis. The significance of metabolomics has been transformed from a straightforward biomarker identification tool to a technology for the detection of active biological process drivers, nevertheless. It is now understood that the metabolome modifies other "omics" levels, including as the genome, epigenome, transcriptome, and proteome, in order to influence cellular function. In this chapter, we highlight the strategies to use metabolomics to uncover the active function of metabolites in physiology and disease by understanding how the metabolome is useful in screening and to identify the active molecules from natural sources such as plants and their mode of action. The idea of using activity screens to find biologically active compounds using metabolomics, or what we call activity metabolomics, is already having a significant impact on biology.

Keywords Medicinal plants · Metabolomics · Antimicrobials · Antimicrobial resistance

8.1 Introduction

Plants always are a helping hand for humans as a natural remedy to treat bacteria and associated diseases or infections. It is worthy to note the impact of plant secondary metabolites for human health and well-being. Uncovered potential of antimicrobials from plants makes them a rich candidate as antimicrobials. It is reported that many

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