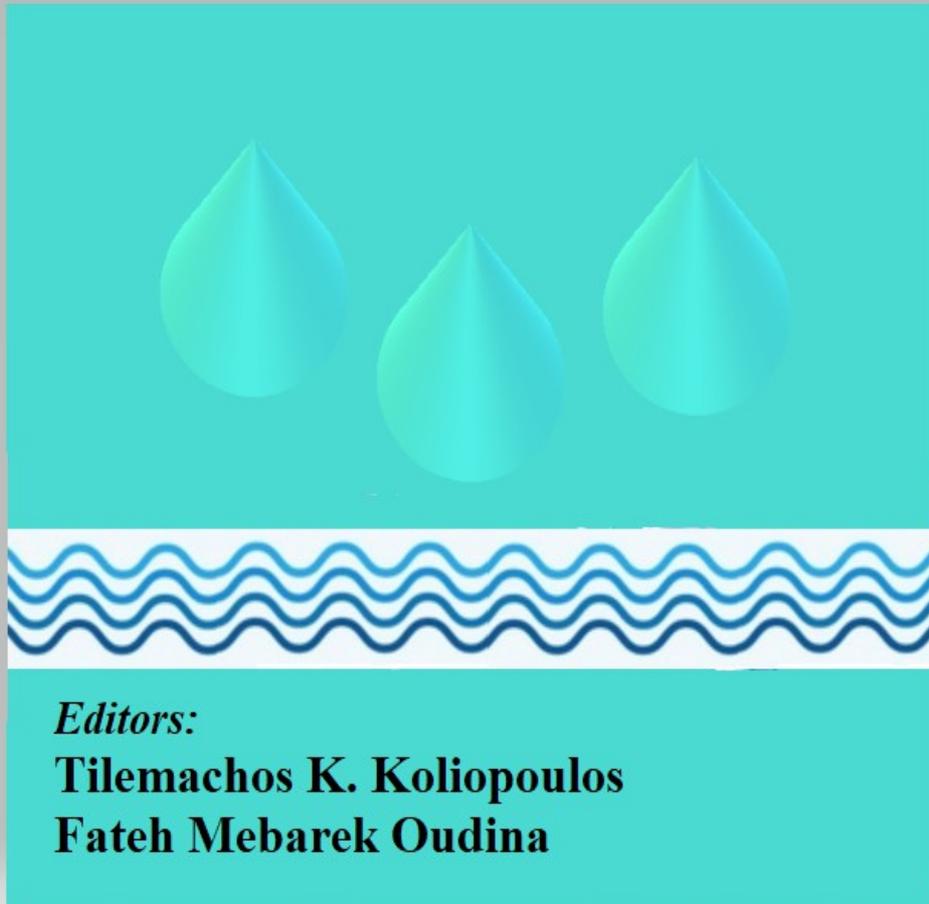


# **Emerging Environmental Technologies and Health Protection**

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*Volume 2 - 2019*



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## **Contents**

Preface

Acknowledgements

About the Editors

### Chapters

1	Biotransformation of Pharmaceutical Drugs by Plant Tissue Culture: Challenges and New Opportunities .....	17
2	Berries as Source of Bioactive Compounds .....	28
3	Grape ( <i>Vitis vinifera</i> ) Pomace as Natural Antimicrobial Agent.....	37
4	Consultation Comparative Study: Communicative Language Teaching (CLT) Principles in the difficulty is that among a wide range of textbooks in the MMCs.....	45
5	Environmental Health Landfill Management – Heat Transfer Modelling at Soil Materials for Agricultural Food Protection and Sustainability .....	54
6	Project Management Utilities for Sustainable Development and Public Health Protection from Malaria.....	71
7	Community Health Infrastructures and Medical Sports Facilities to Prevent AD Disease for Elderly People.....	83
8	Efficient Quality Management for Agricultural Food Productivity.....	95

## Preface

A new volume of periodical research book series has been realized, which is a challenge for research dissemination; research and development for stakeholders and all the while keeping in mind not to do any injustice to the zeal of a contributor who has worked so hard to pen the text. However, “Emerging Environmental Technologies and Health Protection” last decades old philosophy has been attracting the attention of scientists worldwide. Academicians as well as industrialists are equally interested in this new stream of environmental - chemical science; innovative biotechnologies for health protection; sustainable designs; information communication technologies (ICTs); engineering projects; fluid mechanics for the semantics and building capacities between different scientific disciplines in engineering, biotechnology, materials and social sciences for health protection and sustainable development.

Researchers, all over the world, are conducting active research in different fields of engineering, social science and technology by adopting innovative principles and methodologies to devise new processes with a view towards helping, protecting, and ultimately saving the environment of our planet from further anthropogenic interruptions and damage. Achieving sustainability and renewability of resources is the basic spirit of innovative sustainable projects; it inspires us to try alternative “green” sustainable approaches in place of traditional “gray” practices in everyday industrial and scientific activities. Waste management, food protection, innovative materials, efficient information technologies and sustainable design avoiding associated hazards and risks is a matter of great concern. It’s quality important for both domestic purposes and industrial needs. Emerging environmental technologies are coming a necessity within waste management; green chemistry; food productivity; food protection; public health; safety design; innovative materials; social sciences; ICTs; monitoring. They are therefore an important task. But, selecting technology dyes at a cost to the environment that should be avoided when considering which technique to use.

Hence, the far important challenge is to make an applied technique sufficiently sustainable and green within a circular economy. Environmental resources pollution is often discussed with respect to various pollutants and their treatments, but the issue of emerging technologies that support health protection and sustainability has not been discussed sufficiently in the literature. Hence, the emerging environmental technologies and environmental health protection has tremendous scope worldwide. That is why emerging environmental technologies and health protection is an important

issue which needs to be addressed seriously.

The chapters in the current book volume, periodical research series are the outcome of the scholarly writing of researchers of international repute with stellar credentials, who have tried to present an overview of current solutions to particular environmental problems that promote sustainability from different scientific fields. The main aim is to protect human health and environmental resources building capacities that support a sustainable development taken place proper designs and applied environmental technologies, all of which are “green.” The current book volume contains eight chapters, all of which focus on the theme of green technologies, efficient designs that are sustainable and discuss techniques, tools and materials which are nonhazardous, eco-friendly, protecting public health and social progress from different scientific disciplines.

Nowadays, throughout the world, an important topic is the Biotransformation of Pharmaceutical Drugs by Plant Tissue Culture. Chapter 1 presents the particular semantics between challenges and new opportunities of that interesting topic. Biotransformation of pharmaceutical drugs utilizing tissue cell culture is still new unexplored area of scientific research. It holds great potential in terms of modifying available drugs and natural products aiming to improve their therapeutic activity and reduce any adverse toxic effects. The use of microorganisms (bacteria and fungi) in the biotransformation of pharmaceutical drugs has been practiced by scientists over the last five decades. Significant achievements in the field of synthesis and modification of pharmaceutical drugs have been reported. The main advantage of utilizing biotransformation for the synthesis of pharmaceutical drugs is eliminating the need for lengthy tedious synthetic procedures utilizing toxic reagents and catalysts. Biotransformation utilizes only benign solvents (e.g. water, ethanol), enzymes as catalysts under normal temperature eliminating the production of toxic waste materials.

In recent years, numerous epidemiological studies have shown that a diet rich in fruits and vegetables reduces the risk of many chronic diseases, such as cardiovascular diseases and cancer protecting public health. Berries are rich in phenolic compounds. Phenolic compounds, secondary metabolites of plants, exhibit a wide range of biological functions, such as antihypertensive, anti-inflammatory, antioxidant and antimicrobial activities, which are beneficial for human health. Fruits peel, a waste generated during juice elaboration, comprises nearly around 30-40% portion of the fruit. Phenolic compounds are primarily concentrated in the peel portion of berries fruit. Berries and their fruit peels are an economic source of bioactive phenolic compounds having immense possibilities for future investigations related with their utilization as well as recovery. This review summarizes the reported about quantitative and qualitative data of phenolic compositions in different types of berries and its wastes during juice elaboration. Furthermore, biological activities, including antioxidant, antihypertensive, antimicrobial and anti-metabolic disorder effects, have also been discussed. Thus, Chapter 2 focuses on the Berries as Source of Bioactive Compounds.

The food and wine industry always generates solid wastes as well as high volumes of effluents, the handling of which constitutes a considerable challenge. Efforts in food and wine industry are focused on the optimization of food processing technology, trying to minimize the by-products and waste that are generated.

However, Grape (*Vitis vinifera*) is one of the most produced crops worldwide used mainly for wine production. Grape pomace is the solid waste produced after the alcoholic fermentation of wine. Grape and grape pomace contain compounds with beneficial biological activities, such as phytosterols and phenolic compounds. Their concentration and profile of these compounds present great differences in different grape pomace, and this fact could be due to the use of different cultivars and varieties of the plants, differences in the edaphoclimatic conditions and differences in the extraction procedures used, for example. Terpenoid and phenolic compounds from vegetables and grape pomace have antibacterial and antifungal activities against several microorganisms. The predominant phytosterols in vegetables were  $\beta$ -sitosterol, campesterol, and stigmasterol. So, it is possible to reuse grape pomace as a natural antimicrobial agent. Even though, that extracting phenolic compounds or phytosterols will not solve totally the grape pomace problem, could be a partially solve by transform a waste to raw material, giving an environment friendly solution.

Chapter 3, presents innovative solutions for the wine industry, the main by-products and the waste that are produced, the handling of them and the possible uses they may have. In fact, waste from wine industry constitutes a vast resource of a myriad of bioactive compounds. Furthermore, the use of them can in turn reduce the environmental impact derived from the accumulation of such compounds. Chapter 3 focuses on the Grape (*Vitis vinifera*) Pomace as Natural Antimicrobial Agent.

In recent years, Management Marketing Creative Evaluation and Communicative Language Teaching are becoming interesting topics. Management Marketing Creative "MMCs" play an essential role in the language learning process. The difficulty is that among a wide range of MMCs in the market, there are a lot of options which make the process of Management Marketing Creative selection even harder. Therefore, Management Marketing Creative evaluation is a vital process, and it has great impact on the process of learning and teaching. A methodology is presented in order to evaluate ELT MMCs, theorists and writers have offered different kinds of evaluative frameworks based on a number of principles and criteria. To this end, EFL Management Marketing Creative namely New Headway English Course and American English File which are commonly taught in language institutes in Iran were selected for evaluation by seeking the teachers viewpoints on the effectiveness of the MMCs. Twenty ELT teachers helped the researcher rate the evaluative checklists. A modified version of the teacher MMCs evaluation form was used to collect data. Useful results indicated that the differences between the Management Marketing Creative were not significant in four features including practical considerations, layout and design, activities, and skills, but they proved to be different in some other features including language type as well as subject and content Management Marketing Creative. Chapter 4 focuses on the Consultation Comparative Study: Communicative Language Teaching (CLT) Principles in the difficulty is that among a wide range of textbooks in the MMCs.

Chapter 5 presents useful research results related to heat transfer phenomena and fluid mechanics within the importance of the landfill biotechnologies; efficient engineering construction designs; soil materials; and environmental management of landfill emissions with waste biodegradation for agricultural food security and public health protection. The aim is to better understand the role of soil material on lateral landfill boundaries, waste pretreatment, biodegradation processes on the landfill gas migration and

bioremediation in relation to landfill emissions management techniques. The variations of landfill gas migration next to landfill boundaries are evaluated. The field data confirm that waste pretreatment and leachate recirculation are sustainable and accelerate the waste biodegradation protecting agricultural resources and public health from toxic chemical hazards. Chapter 5 focuses on the Environmental Health Landfill Management – Heat Transfer Modelling at Soil Materials for Agricultural Food Protection and Sustainability.

In chapter 6 are presented useful solutions for managing projects for sustainable development and public health protection from Malaria due to climate change and particular anthropogenic activities. As analysis is being carried out on renewable energy projects to tackle climate change and protect public health. Proposals for preventive measures, monitoring of water sanitary facilities and measures for avoiding epidemics due to climate change are presented. Useful conclusions are presented in emerging technologies to protect public health, support renewable energy resources projects and defend sustainable development. Chapter 6 focuses on Project Management Utilities for Sustainable Development and Public Health Protection from Malaria.

Nowadays, Alzheimer – Dementia Disease (AD) disease is considered as a semantic epidemiologic disease in public health. In chapter 7 are presented useful solutions focused on managing projects for sustainable development within public health protection and medical sports facilities. Particular analysis is being carried out on renewable energy projects within health tourism and protection of public health. Proposals are made for sustainable development projects of community health building infrastructures related to Alzheimer - Dementia (AD) disease as well as sports facilities related to monitoring of water projects and measures for avoiding environmental health pollution due to particular land uses and anthropogenic activities. Useful conclusions are presented in emerging technologies to protect public health, supporting sustainable development projects for the confrontation of ecological health pollution within water resources and associated medical sports facilities. Chapter 7 focuses on Community Health Infrastructures and Medical Sports Facilities to Prevent AD Disease for Elderly People.

Chapter 8 presents the importance of food quality management and safety for agricultural food productivity. It presents useful solutions for total quality management within projects for sustainable development and public health protection due to climate change. Particular analysis is being carried out on principles of quality management related to agricultural productivity and public health protection. Useful conclusions are presented in emerging technologies not only for sustainable development but also to protect public health. Chapter 7 focuses on Efficient Quality Management for Agricultural Food Productivity.

Furthermore, this book volume of periodical research series can be used as an important platform to inspire researchers and stakeholders in any related fields in order to develop sustainable processes for important techniques for use in associated fields of green projects; sustainability; food productivity; food protection; waste management; biotechnology; materials; safety design; monitoring; public health protection; ecological health; community health; geohealth; sustainable circular economies and associated information communication technologies. We gratefully acknowledge all the contributors of this book, without whom these valuable chapters could not have

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