

# **POWER OF KNOWLEDGE**

**An International Multilingual Quarterly Peer Review Refereed Research Journal**

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**Head of Dept. Marathi**

Art's & Science College, Shivajinagar, Gadhi, Tq. Georai Dist. Beed-431 143 (M.S.)

Cell. No. 9420029115 / 7875827115

Email : powerofknowledge3@gmail.com /

shsarkate@gmail.com

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Contact : 7875827115

E-mail : Sarkatelata@gmail.com

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अनुक्रमणिका			
अ.क्र.	प्रकरण	संशोधक	पृष्ठ क्रं.
1	A Comparative Study of Mental Health Among Urban and Rural Minority College Students.	Dr. Umakant S. Gaikwad Mailare Sachinkumar Sopanrao	1-5
2	Users' Perception of Resources, Facilities and Services in Arts, Commerce and Science College Arvi Library.	Dr. Manisha R. Khakre	6-12
3	An Important Recommendation in National Education Policy 2020	Dr. Sanjay Bhedekar	13-15
4	Green chemistry: Environmental impact of chemistry	Kalimoddin Momin	16-19
5	A Case Study Of Co-Operatives Dairies In Latur District	Dr. Doiphode Reshma Dhananjay Mr. Prashant Prataprao Kadam	20-24
6	The Effect Of Learning Foreign Language On Self Confidence Of Students	Dr. Subodh Bansod	25-31
7	Equating and Contrasting in English Men and Women Proverbs	Mr. Umesh Khushal Rathod	32-37
8	फिर्याद: स्त्रियांच्या गुलामगिरीचा पाढा	प्रा. अविनाश सुदाम भालेराव	38-44
9	धग असतेच आसपास' : एक आकलन	प्रा. डॉ. मोरे अर्चनादेवी पंढरीनाथ	45-49
10	कागूद - शेतीनिष्ठ मराठी संस्कृतीचा कणा	प्रा. कृष्णा रतनराव बनसोडे	50-57
11	भारतीय स्वातंत्र्याचे अमृत महोत्सवी वर्ष	प्रा. मनीषा. सु. नेसरकर	58-63
12	'वाटा—पळवाटा' नाटकातील संघर्षाचे सूत्र	प्रा. डॉ. सुशील मेश्राम	64-67
13	कन्नड - मराठी भाषिक भावविश्व : तळ आणि तरंग	मा. डॉ. विनोद गायकवाड	68-76
14	रघुवीर सहाय की कविताओं में मूल्य चेतना	प्रा. अच्युत साधू शिंदे	77-81
15	रामधारी सिंह 'दिनकर' के काव्य में मानवतावादी विधान	डॉ. ज्ञानेश्वर भीमराव महाजन	82-84
16	पत्र-पत्रिकाओं का लघुकथा के विकास में योगदान	प्रा. डॉ. कल्पना राजेंद्र पाटील	85-90
17	स्वातंत्र्य संग्राम मे विरांगनाओं का योगदान : उत्तर प्रदेश के संदर्भ में	प्रा. डॉ. यशवंत शोभा जगन्नाथराव	91-94
18	मालती जोशी की कहानियों में चित्रित मध्यवर्गीय परिवार	डॉ. ज्ञानेश्वर भीमराव महाजन	95-97
19	राजस्थानी शास्त्रीय संगीत एवं बन्दिशे	प्रा. डॉ. सोपान सि. वतारे	98-99
20	आजच्या काळातील सहकार क्षेत्रापुढील आव्हाने	डॉ. गणेश जानराव मस्के	100-101

21	प्रदूषण एक समस्या	डॉ.व्यंकटेश काळुराम मदनुरे	102-106
22	महाराष्ट्रातील मराठी-मुस्लीम संत	डॉ. शेख हुसैन इमाम	107-114
23	१९४२ चे आंदोलन व मराठवाडज मुक्तीसंग्रामातील सत्याग्रह चळवळ	प्रा.डॉ.अरुण बावा	115-118
24	मराठवाडा मुक्तीसंग्रामातील विद्यार्थी आंदोलन - वंदे मातरम्	प्रा.डॉ.अविनाश मुळे	119-121
25	राष्ट्र - राज्य संकल्पना, उदय आणि विकास	श्रीमती कदम एल.एन.	122-129

## Green chemistry:Environmental impact of chemistry

Kalimoddin Momin

Department of Chemistry,

Rajarshi Shahu Mahavidyalaya, Dist. Latur.

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### Abstract

Chemistry is a science that provides unquestionable contributions to improve the quality of human life and well-being, devising creative solutions in such diverse fields as drug preparation, providing cures for many diseases, developing pesticides that have enabled crops to feed the world's population, or producing new materials to help many sectors of the population. However, Chemistry in society often looks bad in the media, where chemical is synonymous with something dangerous, harmful, or negative. This frequently leads to broadcasting only the more negative aspects of this branch of science, such as the toxicity of some substances or pollution resulting from misuse or improper handling of chemicals in general.

**Keywords:**Green chemistry, toxicity, pollution, prevention

### 1. Introduction

The term "Green Chemistry" deals with the design of chemical products and processes that reduce or eliminate the use and production of toxic or hazardous substances. It cannot be considered a branch of chemistry but rather a code of conduct to try to reduce the environmental impact of any chemical process.

Green chemistry is the design of chemical products and processes that reduce or eliminate the use or generation of hazardous substances. Green chemistry applies across the life cycle of a chemical product, including its design, manufacture, use, and ultimate disposal. Green chemistry used for

1. Prevents pollution at the molecular level
2. Is a philosophy that applies to all areas of chemistry, not a single discipline of chemistry
3. Applies innovative scientific solutions to real-world environmental problems
4. Results in source reduction because it prevents the generation of pollution
5. Reduces the negative impacts of chemical products and processes on human health and the environment
6. Lessens and sometimes eliminates hazard from existing products and processes
7. Designs chemical products and processes to reduce their intrinsic hazards

Green chemistry, similar to sustainable chemistry or circular chemistry, is an area of chemistry and chemical engineering focused on the design of products and processes that minimize or eliminate the use and generation of hazardous substances. While environmental chemistry focuses on the effects of polluting chemicals on nature, green chemistry focuses on the environmental impact of chemistry, including lowering consumption of nonrenewable resources and technological approaches for preventing pollution.

1. Prevention: It is better to prevent waste than to treat or clean up waste after it is

- formed.
2. Atom Economy: Synthetic methods should be designed to maximize the incorporation of all materials used in the process into the final product.
  3. Less Hazardous Chemical Synthesis: Whenever practicable, synthetic methodologies should be designed to use and generate substances that possess little or no toxicity to human health and the environment.
  4. Designing Safer Chemicals: Chemical products should be designed to preserve efficacy of the function while reducing toxicity.
  5. Safer Solvents and Auxiliaries: The use of auxiliary substances (solvents, separation agents, etc.) should be made unnecessary whenever possible and, when used, innocuous(harmless)
  6. Design for Energy Efficiency: Energy requirements should be recognized for their environmental and economic impacts and should be minimized. Synthetic methods should be conducted at ambient temperature and pressure.
  7. Use of Renewable Feedstocks: A raw material or feedstock should be renewable rather than depleting whenever technically and economically practical.
  8. Reduce Derivatives: Unnecessary derivatization (blocking group, protection/ deprotection, temporary modification of physical/chemical processes) should be avoided whenever possible.
  9. Catalysis: Catalytic reagents (as selective as possible) are superior to stoichiometric reagents.
  10. Design for Degradation: Chemical products should be designed so that at the end of their function they do not persist in the environment and instead break down into innocuous degradation products.
  11. Real-time Analysis for Pollution Prevention: Analytical methodologies need to be further developed to allow for real-time in-process monitoring and control prior to the formation of hazardous substances.
  12. Inherently Safer Chemistry for Accident Prevention: Substance and the form of a substance used in a chemical process should be chosen so as to minimize the potential for chemical accidents, including releases, explosions, and fires.

**Generation of Agro-industrial Waste:**

Due to the complex chemical composition, animal and vegetable residues can be used as a low-cost raw material to obtain bioactive compounds using suitable processes.

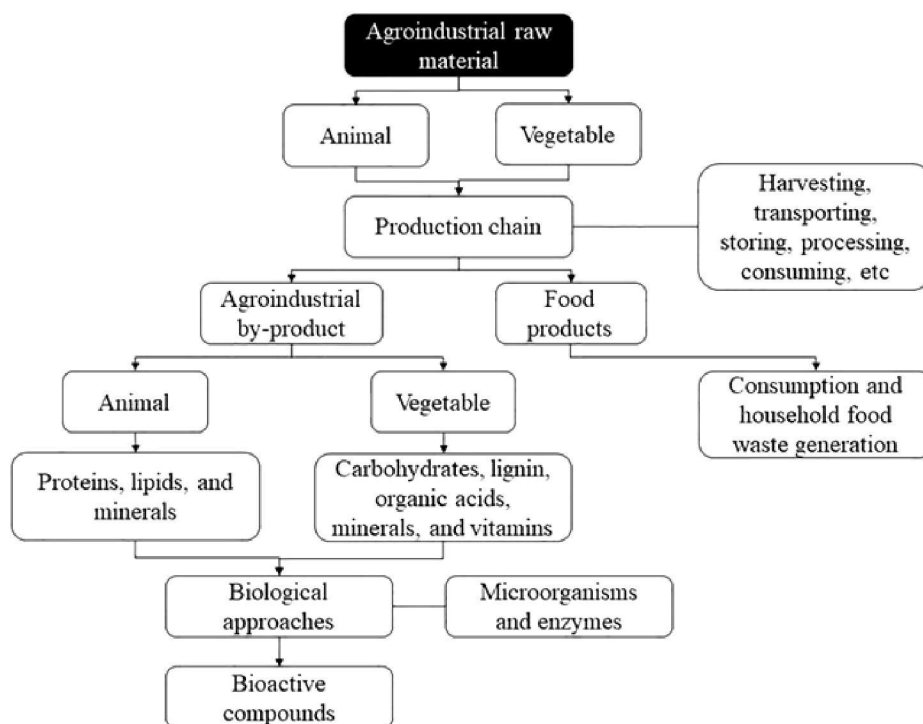


Fig. 1. General steps that involve the generation of agro-industrial wastes and their use to produce bioactive components.

## 2. Conclusion and future scope

The sustainable development faces several challenges and focus areas. Reductions of waste, raw material, energy, solvent, cost, risk, and product usage contribute to sustainable development. The chapter describes energy sources, process intensification, solventless reaction, and biotechnology. It then lists a few examples of alternate chemicals to achieve a "clean environment." Additionally, it also points out a few of the future challenges for theoretical and physical chemists and scientists. Green chemistry is a journey rather than a conclusion. It is also expected to be based on continual improvement, discovery, and innovation. It should lead to the path toward the perfect goal of environmentally benign reactions, synthesis, processes, and products. Many areas of research pose a scientific challenge to chemists and have the potential for large benefits. Such areas require major financial support as well as plenty of interdisciplinary research input.

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**References:**

1. Anastas P.T., Warner J. (1998). Green Chemistry Theory and Practice. Oxford University Press; Oxford, UK
2. Cerutti A.K., Beccaro G.L., Bagliani M., Domo D., Bounous G. (2013). Multifunctional Ecological Footprint Analysis for assessing eco-efficiency: A case study of fruit production systems in Northern Italy. J. Clean. Prod. 40:108-117. doi: 10.1016/j.jclepro.2012.09.028. - DOI
3. Fu W., Turner J.C., Zhao J., Du G. (2015). Ecological footprint (EF): An expanded role in calculating resource productivity (RP) using China and the G20 member countries as examples. Ecol. Indic. 48:464-471. doi: 10.1016/j.ecolind.2014.09.023. - DOI
4. Galli A. (2015). On the rationale and policy usefulness of Ecological Footprint Accounting: The case of Morocco. Environ. Sci. Policy. 48:210-224. doi: 10.1016/j.envsci.2015.01.008. - DOI
5. Horvath I.T., Anastas P.T. (2007). Innovations and Green Chemistry. Chem. Rev. 107:2169-2173. doi: 10.1021/cr078380v. - DOI - PubMed
6. Khoo H.H. (2015). Review of bio-conversion pathways of lignocellulose-to-ethanol: Sustainability assessment based on land footprint projections. Renew. Sustain. Ener. Rev. 46:100-119. doi: 10.1016/j.rser.2015.02.027. - DOI
7. Kirchoff M.M. (2003). Promoting Green Engineering through Green Chemistry. Environ. Sci. Technol. 37:5349-5353. doi: 10.1021/es0346072. - DOI - PubMed
8. Patel K.R., Sen D.J., Jatakiya V.P. (2013). Atom Economy in Drug Synthesis is a Playground of Functional Groups. Am. J. Adv. Drug Deliv. 1:73-83.
9. Singh S., Bakshi B.R. (2015). Footprints of carbon and nitrogen: Revisiting the paradigm and exploring their nexus for decision making. Ecol. Indic. 53:49-60. doi: 10.1016/j.ecolind.2015.01.001. - DOI
10. Tony Phan T.V., Gallardo C., Mane J. (2015). Green motion: A New and Easy to Use Green Chemistry Metric from Laboratories to Industry. Green Chem. doi: 10.1039/c4gc02169j. - DOI

