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Green Chemistry and its Impact on Environment

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Editorial

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EDITORIAL

Green chemistry aims to lessen the impact of products and industrial processes on human health and the environment by designing (or redesigning) them. The principle of sustainability is central to the GC philosophy, which entails decreasing environmental impacts and conserving natural resources for future generations. Although many of the ideas of green chemistry are not new, the extent to which they have been structured into a cohesive framework and the extent to which they are being used has heightened interest in this area among academic, industrial, and regulatory organizations. Green chemistry has progressed to the point where it is now considered standard practice in both academia and industry. Green chemistry is the development of chemical products and processes that minimise or eliminate the usage of hazardous chemicals and their manufacture. As a result, green chemistry methods are designed to benefit society as a whole in terms of both economic and environmental benefits. With public awareness of environmental issues growing, current students are keen to study about green chemistry and sustainability concepts. As a result, many universities have begun to include green chemistry ideas into their curricula or research projects green chemistry concepts have been proved to be effective in existing general chemistry and organic chemistry courses. Green chemistry's cross disciplinary nature allows it to be taught alongside other subjects, and several new green chemistry courses have been established and integrated into curriculum. Some of these courses were created with chemical or scientific majors in mind, while others were created with nonscience majors in mind. A community based service learning project has been included into a Westminster College undergraduate green chemistry course. Students created green chemistry laboratory activities for use at a local high school as part of this project. Despite the fact that green chemistry principles are closely linked to environmental and societal issues, there have been few recorded attempts to include community based service learning into green chemistry classes. Green and sustainable chemistry, a relatively new notion that emerged in the early 1990's, only gained traction and acceptance at the millennium's turn. Green and sustainable chemistry is concerned with the creation of procedures and technologies that result in more efficient chemical reactions that produce less waste and emit fewer pollutants than typical chemical reactions. Green chemistry refers to all aspects and types of chemical processes that have less harmful effects on human health and the environment than existing best practices. Green Chemistry's concepts and guidelines are meant to achieve the following objectives for any chemical process:

For the development of a chemical process, make greater use of available resources. Reduce the amount of waste generated during chemical preparation and handling. Improved techniques should be used to create materials in order to reduce negative environmental consequences. Replace harmful reagents and products with alternatives that have similar qualities and applications but have a lower environmental impact. Reduce the amount of energy necessary to create the compounds of interest, either by using much faster processes or by using renewable energies with lower energy costs and higher efficiency. Reduce the toxicity of a certain compound material as well as the compound itself. Chemists can considerably reduce hazards to human health and the environment by decreasing or eliminating the usage or creation of hazardous chemicals connected with a particular synthesis or process. Green chemistry is today's necessity and the light of the future, providing a valuable idea for scientifically based environmental conservation. Green chemistry concepts must be used by chemists, researchers, and pharmaceutical companies when creating reaction mechanisms and selecting catalysts. We can reduce waste, limit the use of harmful chemicals, sustain the atom economy, and safeguard the environment, which is the legacy of our future generation, by employing green chemistry processes. One of the new millennium's problems is to integrate technical advancement with environmental protection. Chemists will play a critical role in establishing the circumstances for long-term development, and green chemistry could be their winning strategy. Green chemistry addresses these issues by developing novel reactions that maximise desired products while minimising by-products, developing new synthetic schemes and apparatus that simplify chemical manufacturing operations, and looking for greener solvents that are inherently environmentally and ecologically friendly.