

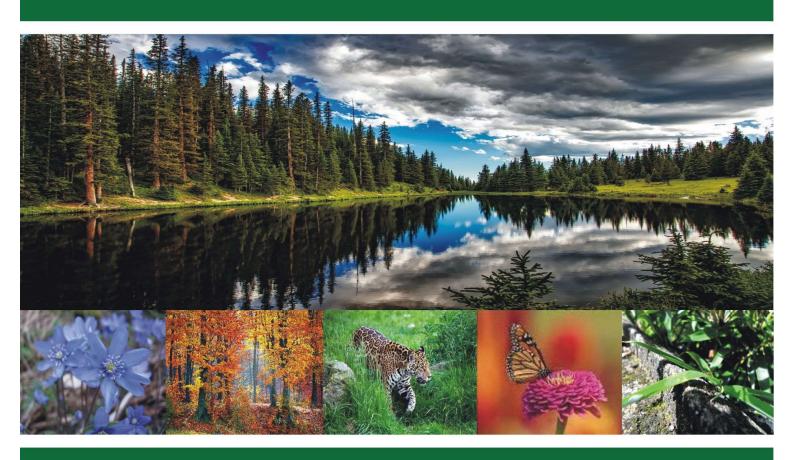




One Day National Webinar On

Biodiversity and its Conservation

Date: 14 December, 2023



ORGANIZED BY

Government College Garha, Jabalpur (M.P.)

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Dept. of Higher Education, Govt. of Madhya Pradesh

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Role of Green Chemistry for Pollution Control and Sustainable Development and Conservation of Biodiversity

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Abstract: Biodiversity is critical for human well-being and activities because it offers a broad variety of ecosystem services; hence its preservation is urgently needed. At the moment, biodiversity is rapidly declining. After climate change, biodiversity loss is the second most significant global risk. The chemical industry plays a critical role in the development of environmentally friendly solutions such as biobased goods and solutions that need the use of biomass. Chemical industry represents a highly successful sector of manufacturing and a vital part of the economy in many industrialized and developing countries. The range of chemical industry is vast which makes an invaluable contribution to the quality of our lives. However, the manufacture of chemical products also leads to enormous quantities of environmentally harmful waste and the health of the environment is declining rapidly. Despite the great success and importance of chemistry to our society its public image has deteriorated. A major reason is that the industry is perceived as being polluting and causing significant environmental damage. "Green" chemistry is an effort of terminating or reducing the use and generation of hazardous chemicals in the design, manufacture and applications of chemical products. Green chemistry efficiently utilizes renewable raw materials, eliminates waste and avoids the use of toxic and/or hazardous reagents in the manufacture and applications of chemical products thereby it plays an important role for pollution control and sustainable development & conservation of environment and Biodiversity.

Keywords:- Green Chemistry, Chemical Industry, Sustainable Development And Conservation of Biodiversity.

1. Introduction :- Society has been very much benefitted from Chemical products synthesized. Chemical industry represents a highly successful sector of manufacturing and a vital part of the economy in many industrialized and developing countries. The range of chemical industry is vast which makes an invaluable contribution to the quality of our lives. However, the manufacture of chemical products also leads to enormous quantities of environmentally harmful waste and the health of the environment is declining rapidly [1].

Atmospheric air is polluted by exhaust gases from chemical industries which seriously affect Biodiversity. Lower life forms are more affected e.g. Lichens, Bryophytes, Fungi. On land, Plants are more prone than animals. It is also observed that due to air pollution some species declines but some expand to full fill space of declined species. Contamination of soil by anything is called Soil Pollution. It occurs when pollutants in the soil reduce soil quality and make it inhabitable to organisms such as insects. In recent decades, the use of inorganic fertilizers has increased dramatically. Chemical runoff from pesticides and fertilizers can degrade soil quality. Industrial development has been associated with both physical degradation and chemical contamination of soils. The industry is also responsible for dumping industrial chemicals and heavy metals (such as mercury) onto soil and thus polluting it. Soil pollution can lead to the lack of biodiversity in an ecosystem. The life of bird, insect, mammal and reptile species who live in the soil can get affected by pollution. The soil is an important habitat. When it rains, surface run-off carries contaminated soil into water sources causing water pollution. The contaminated water is thus unfit for both animal and human consumption. It will also affect aquatic life since the organisms that live in these water bodies will find their habitats inhabitable [2].

From all the described species of biodiversity, 6% belongs to fresh water. Effluent from Chemical Industry drastically affects the aquatic life and thus affecting the biodiversity.

The pesticides are used to kill fungal or animal pests. As they are sprayed across the entire agricultural field affects lives of many species. Also, most of the pesticides after their use remains in the environment get transferred through food chain and causes many serious problems related to reproduction rates .

Major problems in chemical production are handling of waste, the search for environmentally tolerable