

A Review Paper on Pollution Reducing Plants

Parvinder Kaur^{1,2}, Hemant Rajveer Singh³

¹Centre for Development of Advanced Computing, Mohali, Punjab, India

²Advisor, Green ThinkerZ Society, Mohali, Punjab, India

³Patent research analyst at Scintillation and research analytics services, Mohali

Abstract - Pollution become a rising concern due to various factors natural and due to human activity. It is not only the topic of concern for human being but also for animals. So, there is pressing need to combat with this challenge with latest and efficient green technology to create awareness about Pollution. We can control the pollution with the help of plants. It is just the one way to control the pollution. So this paper mainly discuss the combination of biological substances and environment with the proposed direction to reduce pollution with the help of ornamental plants.

I. INTRODUCTION

Now days pollution is a big problem also it becomes a serious problem for the survival of species. Pollution can be of various types like air, water, soil, sound and mental pollution. Earth was a beautiful place but man has continuously destroying our mother nature for his greed. Due to rapid growth of industry, pollution becomes a serious problem for environment. Overuse of chemicals, rapid increase of automobiles gives invitation to this problem. There are so many ways to reduce or control the environmental pollution such as planting of trees. Earlier, Planting trees is only the way to control pollution, but there are so many plants that improve the quality of environment [1]. Indoor as well as Outdoor plants work like a filter or air conditioners to clean the air around us. They work hard to absorb carbon dioxide and release oxygen [2]. Not only air, water as well as soil pollution can be reduced with the help of such plants. This paper purely emphasis on plants that helps to reduce pollution from environment

Keywords - Pollution, Types of Pollution, Plants that helps to reduce pollution

I. WHAT IS POLLUTION

Before emphasizing on plants that helps to reduce pollution, we must be aware of what is **pollution**? Pollution is simply introduction of any substance or energy into our environment which has harmful or adverse effects on environment. There are several types of pollution that is generated due to different type of sources and consequences. In this paper, we are mainly going to focus on Air, water and soil pollution.



Fig. 1: Pollution [3]

II. AIR POLLUTION

A Physical, biological and chemical substance releases in air that is harmful for humans, animals and for the growth of plants. Major sources of air pollution are burning of fossil fuels, agricultural activities, exhaust from factories and industries, mining operation etc. which will cause activities like global warming, acid rain, depletion of ozone layer etc.

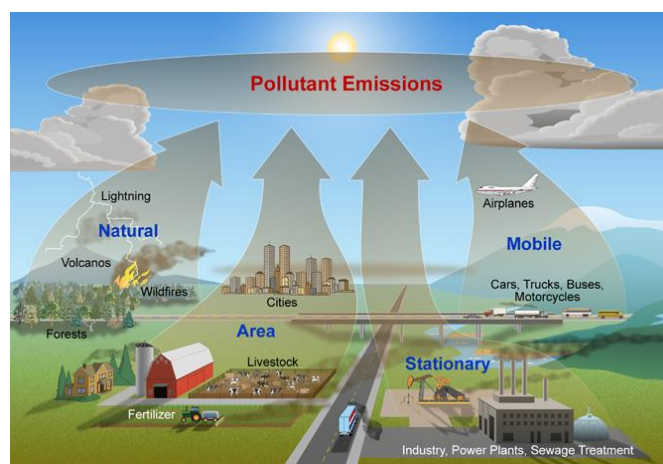


Fig 2: Air Pollution [4]

III. SOIL POLLUTION

Soil pollution is mixture of soil with some harmful substance or impurities that contaminate the quality of soil by

human or natural activities which will effect on living organism adversely. Major sources of soil pollution are Industrial, agricultural, radioactive and biological waste etc.

which will give invitation to erosion, soil degradation, landslides etc.

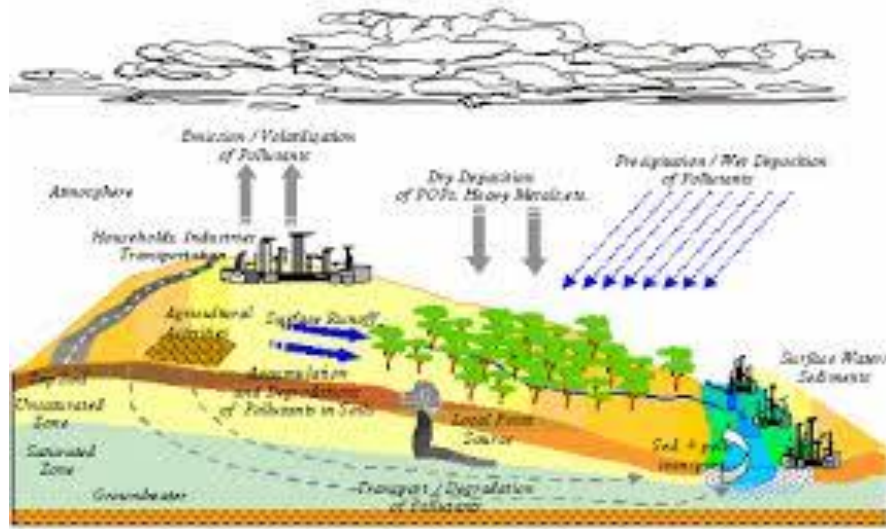


Fig 3: Soil Pollution [5]

IV. WATER POLLUTION

Water pollution is environmental degradation of water when pollutants are mixed with water directly or indirectly.

Major sources of water pollution are storm drain, sewage treatment etc. which will cause pathogens, thermal pollution etc.



Fig 4: Water pollution [6]

V. PLANTS THAT HELPS TO REDUCE AIR POLLUTION

There are number of plants for removing formaldehyde, benzene, and carbon monoxide from the air. Some of them listed below:

1. **Lady palm :** Lady palm is a tree like species take less time to grow, mainly reduces ammonia present in air and various ingredient used in textiles, dyes etc.



Fig.5: Lady palm [7]

2. **Bamboo palm:** Bamboo palm tree take a lot of room to grow, but it removes the formaldehyde present in the air.



Fig.6: Bamboo palm [8]

3. **Rubber plant:** Rubber plant need less space to grow and it can purify larger amount of oxygen in less time.



Fig.7: Rubber Plant [9]

4. **Peace lily:** Peace lily plant takes less time as well as light to grow. It sucks acetone which is emitted by electronic and adhesive cleaners.



Fig.8: Peace lily [10]

VI. PLANTS THAT HELPS TO REDUCE SOIL POLLUTION

1. **INDIAN MUSTARD:** Indian mustard who is also known as Brassica Juncea is very effective to reduce Pb, Zn, Hg and Cu from the soil.



Fig.9: Indian mustard [11]

VII. PLANTS THAT HELPS TO REDUCE WATER POLLUTION

Following plants are used to reduce pollutants like Pb,Cd,Cu and Fe.

1. **Hydrilla verticillata:**

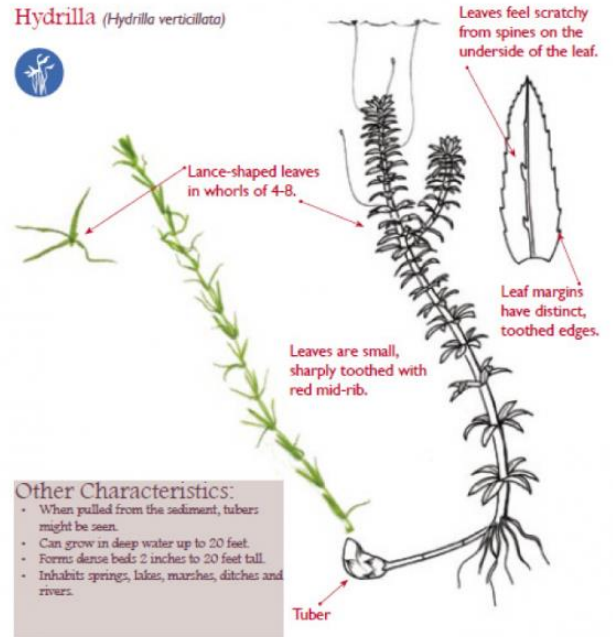


Fig 12: Hydrilla verticillata [14]

2. **SUNFLOWER:** Sunflower who is also known as helianthus annuus is very effective to remove radioactive elements like Cs, Sr , Pb and Zn as well.



Fig.10: Sunflower [12]

2. **Spirodela polyrrhiza**



Fig 13: Hydrilla verticillata [15]

3. **Hydrangea :** Hydrangea plant can be blue, pink, purple aor creamy mainly used to draw aluminium from the soil.



Fig 11: Hydrangea [13]

VIII. CONCLUSION

By considering the today’s scenario of environmental pollution, there is a huge need of sources that helps to reduce pollution so that we can bring a healthy life in the congested cities. This paper gives a brief review about various types of pollution and how to reduce it. Ornamental plants are the one

way to reduce the pollution. There are many another techniques to reduce pollution like phytoremediation. A much more research on these plants is needed to understand the biological relationship with environment to reduce pollution.

IX. REFERENCES

- [1]. S. Ramesh Kumar;T. Arumugam; C.R. Anandakumar; S. Balakrishnan and D.S. Rajavel, "Use of Plant Species in Controlling Environmental Pollution- A Review", Vol. 2; Page No. 52-63; Jan. 2013.
- [2]. Top Ten Indoor Plants to Reduce Pollution, [Online] Available: <http://earthship.com/blogs/2011/04/top-ten-indoor-plants-to-reduce-pollution>
- [3]. [Online] Available: <https://thumbs.dreamstime.com/z/global-warming-pollution-concept-26921250.jpg>
- [4]. [Online] Available: http://www.nature.nps.gov/air/aqbasics/images/types_of_sources_02-2012.jpg
- [5]. [Online] Available: http://www.eugris.info/content/Content_Digests/Level2_Diffuse_Pollution-Dateien94/IMAGE001.GIF
- [6]. [Online] Available: <http://www.filterwater.com/images/upload/waterpollutionsource.s.jpg>
- [7]. Clean-Air Plants for Your Home, [Online] Available: http://www.thisoldhouse.com/toh/photos/0,,20452423_2089229_4,00.html
- [8]. 10 Air Purifying Plants For Homes & Offices, [Online] Available: <http://webecoist.momtastic.com/2009/04/08/air-purifying-plants/>
- [9]. 15 Air Purifying Plants to Remove Harmful Toxins , [Online] Available: <http://bembu.com/air-purifier-plants>
- [10]. [Online] Available: http://www.thisoldhouse.com/toh/photos/0,,20452423_2089228_9,00.html
- [11]. 5-best-plants-for-phytoremediation, [Online] Available: <http://landarchs.com/5-best-plants-for-phytoremediation/>
- [12]. [Online] Available: <http://cdn.farmersalmanac.com/wp-content/uploads/2012/06/sunflowers-rescue-600x400.jpg>
- [13]. [Online] Available: http://photos.metrojacksonville.com/photos/883148896_RX2Qp-M.jpg
- [14]. [Online] Available: <https://s3.amazonaws.com/assets.cce.cornell.edu/attachments/679/Hydrilla.png?1401470424>
- [15]. [Online] Available: <http://www.biopix.com/photos/jcs-spirodela-polyrhiza-49704.jpg>



Parvinder Kaur is working as Associate Engineer in Idea Cellular Pvt.ltd. She has completed her Master's degree in Electronics Product Desing & Technology form C-DAC, Mohali. She is working as Chief Advisor of Green ThinkerZ Society to promote environmental and social sustainability. Her area of interest includes wireless communication and embedded system.



Hemant Rajveer Singh is working as a patent research analyst in Scintillation and research analytistics Pvt.ltd. He has completed her Master's degree in ECE form Rayat and Bahra Institute of Engineering and technology. He is working in Green ThinkerZ Society to promote environmental and social sustainability. His area of interest includes wireless communication and Green BTS.