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A SYSTEMATIC REVIEW ON SMOG

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ABSTRACT

Smog is a type of air pollution that makes it difficult to see. It is frequent in industrial areas. The majority of the pollution we see nowadays is photochemical haze. Haze may be an issue in cities located in basins surrounded by mountains because the smog is confined in the valley and cannot be transported away by the wind Ozone has the potential to be both beneficial and dangerous. It can harm lung tissue, and it is especially dangerous for persons who suffer from respiratory disorders. Smog also has very bad effect on artificially synthesized materials for example rubber, gums, cotton and leads destruction of these materials. The high amount of ozone leads closure of stomata and decreases the quantity of CO_2 for a plant in returns it affect the rate of photosynthesis. The particular components of matters badly effect on parts of plant. It decreases brightness and colour of grains of wheat.

Keywords: Smog, Air Pollution, CO_2, Photosynthesis

INTRODUCTION

Smog is a type of air pollution that makes it difficult to see. In the early 1900s, the term "smog" was coined to describe a mixture of smoke and fog **[1]**. The smoke was mainly caused by coal burning. Smog was frequent in industrial regions and is still seen today in cities. Smog, often known as smoke fog, is a form of severe air pollution. Smog is a contraction (portmanteau) of the words smoke and fog that refers to smoky fog due to its

opacity and stench. It was coined in the early twentieth century. The term was originally intended to relate to pea soup fog, a common and major phenomenon in London from the nineteenth century to the mid-twentieth century **[2, 3]**.

The majority of the pollution we see nowadays is photochemical haze. When sunlight combines with nitrogen oxides and at least one volatile organic compound (VOC) in the atmosphere, photochemical smog is formed. Car exhaust, coal power stations, and manufacturing pollutants all emit nitrogen oxides. Gasoline, paints, and a variety of cleaning solvents all emit VOCs. When these compounds are exposed to sunlight, they produce airborne particles and ground-level ozone, sometimes known as smog **[4]**.

Ozone has the potential to be both beneficial and dangerous. The ozone layer, which is located high in the atmosphere, shields us from the sun's harmful ultraviolet rays. When ozone is near the ground, though, it is harmful to human health. Ozone can harm lung tissue, and it is especially dangerous for persons who suffer from respiratory disorders such as asthma. Ozone can also make your eyes itch and burn.

Smog is harmful to humans and animals, as well as plants. Smog is also unattractive. It turns the sky a shade of brown or gray. Large cities with a lot of industry and traffic are prone to smog. Haze may be an issue in cities located in basins surrounded by mountains because the smog is confined in the valley and cannot be transported away by the wind **[5]**. Because of this type of environment, both Los Angeles, California, and Mexico City, Mexico, have high smog levels.

Smog reduction legislation have been enacted in a number of countries, including the United States. Some rules limit the kind of chemicals that a manufacturer can release into the atmosphere, as well as when they can be released. Residents can burn rubbish such as leaves in their yards on "burn days" in some towns. Smog is reduced as a result of these constraints on chemicals discharged into the air **[6]**.

Smog continues to be an issue in many areas. Everyone can help reduce smog by adopting a few new habits, such as:

Driving less is a good idea. When possible, walk, cycle, carpool, or take public transportation.

Take good care of your automobiles. Regular tune-ups, oil changes on time, and correct tire inflation can all help you get better gas mileage and lower your emissions.

During the cooler hours of the day—at night or early in the morning—refuel. As a result, gas fumes do not heat up and produce

ozone.Avoid goods that emit a lot of volatile organic compounds (VOCs). Use low-VOC paints, for example.Gas-powered lawn equipment, such as lawn mowers, should be avoided. Instead, use electric appliances. Mornings are frequently the worst for smog because there is less air movement **[7]**.

DISCUSSION

The air pollution which is association of fog and smoke is known as smog. There are two distinct values of smog which are recognized; sulphurous smog maked by high quantity of oxides of sulphur in troposphere and it is due to combustion of fossil fuels particularly coal. The other type is photochemical smog whose make up is not fixed. Photochemical smog is majorily located in urban areas due to vast amount of automobiles. The initiation of this distinct form of smog is due to gaseous oxides of nitrogen and hydro-carbon which is moved out from automobiles. The heavy virulent gas ozone is also maked by association of oxides of nitrogen with gaseous form of hydrocarbon. The organic radical reacts with NO and maked NO_2. Ozone is making from mono-atomic oxygen that is considered by product in this form of smog **[8]**.

The formation of smog is due to reaction of air pollutants in troposphere. These contaminants are making naturally and makes by activities of human. Smog is very harmful, its affects depends upon the quantity of smog inhaled and the aggregate of pollutants present in smog. However, the effect of smog also depends upon individual age and immune system of person. Recent research shows that inhalation of these pollutants in the form of smog has very virulent effects. Smog leads infection of eyes and lungs. This infection decreased the capacity of lungs to inhale and exhale. It also increases the disorders of heart and sometime proves fatal. Virulent gas present in smog is also very harmful for eyes, nose, lungs and throat. It is majors' cause of respiratory disorder and respiratory problems such as coughing and sneezing. These respiratory problems lead aging and dysfunction of lungs. The oxides of nitrogen present in smog have also very harmful for health and respiratory system of a living body. Direct inhalation of nitrogen monoxide leads shortness of breath; indirectly it is involved in ozone formation. The oxides of sulphur present in smog leads infection of eyes, nose and lungs. Smog translocate to core of lungs and aggregate with water molecules and leads association of sulphuric acid, which is very virulent for lungs and organism body. Carbon monoxide, gaseous form also restricted in smog. In high concentration it is deadly for an organism body. Carbon monoxide aggregate

with haemoglobin and reduce capability of reddish haemoglobin to conduct oxygen, therefore it deprive many vital organ of organism body to oxygen **[9]**.

Smog has very virulent effect for organism body as well as surrounding of a living body. It ceased growth of plant and stunt many enzymatic mechanisms of plant. The high amount of ozone leads closure of stomata and decreases the quantity of CO2 for a plant in returns it impress the rate of photosynthesis. Smog also has bad effect on artificially synthesized materials for sample rubber, gums, cotton and leads destruction of many materials. Particulate matters are also found in smog, it stunt the plant to intake of carbon dioxide. Therefore it decreases the rate of photosynthesis. The specific components of matters badly affect on parts of plant. It decreases brightness and colour of grains of wheat.

CONCLUSION

Air pollutants and particulates, produced from different resources; natural and human activities, combined with fog to make a smog which has severe effects on the atmosphere and living bodies i.e. humans, animals, and plants. The major pollutants are ozone, oxidesof Nitrogen, sulfur, and carbonwhich cause severe problems of eyes, nose, throat, and lungs in humans and particulate; inhibit the intake of carbon dioxide in plants. It causes to destroy the synthesized and natural material. It is also a major cause of road accidents reported in different highly polluted cities in the world.

It's not an issue of a single country it affects all countries. With the increase in the population of the world smog production resources is also increasing. So, it needs to take some innovative steps and make strong legislation to overcome this problem globally.

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