



IJPPR

INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals

ISSN 2349-7203



GREENHOUSE EFFECT AND THEIR IMPACT ON GLOBAL WARMING

Yogesh Patil, Swarup Bhosale, Vishvjeet Gaikwad

Anandi Pharmacy College Kalambe Tarf Kale, India.

ABSTRACT

The Greenhouse effect is a leading factor in keeping the Earth warm because it keeps some of the planet's heat that would otherwise escape from the atmosphere out to space. The study report on the Greenhouse gases and their impact on Global warming. Without the greenhouse effect the Earth's average global temperature would be much colder and life on Earth as we know it would be impossible. Greenhouse gases include water vapor, CO₂, methane, nitrous oxide (N₂O) and other gases. Carbon dioxide (CO₂) and other greenhouse gases turn like a blanket, gripping Infra-Red radiation and preventing it from escaping into outer space. The clear effect of the greenhouse gases is the stable heating of Earth's atmosphere and surface, thus, global warming. The ability of certain gases, greenhouse gases, to be transparent to inbound visible light from the sun, yet opaque to the energy radiated from the earth is one of the best still events in the atmospheric sciences. The existence of greenhouse effect is what makes the earth a comfortable place for life. The study also reveals the importance of greenhouse gases to the warming of the planet earth.

Keywords: Greenhouse gases; global warming; greenhouse effect; global temperature; atmosphere.

INTRODUCTION

The greenhouse effect is a natural process that is millions of years old. It plays a critical role in a variable the overall temperature of the Earth. The greenhouse effect was first discovered by Joseph Fourier in 1827, experimentally verified by John Tyndall in 1861, and quantified by Svante Arrhenius in 1896. These gases, mostly water vapours, carbon dioxide, methane and nitro oxide, all perform as effective global insulators.

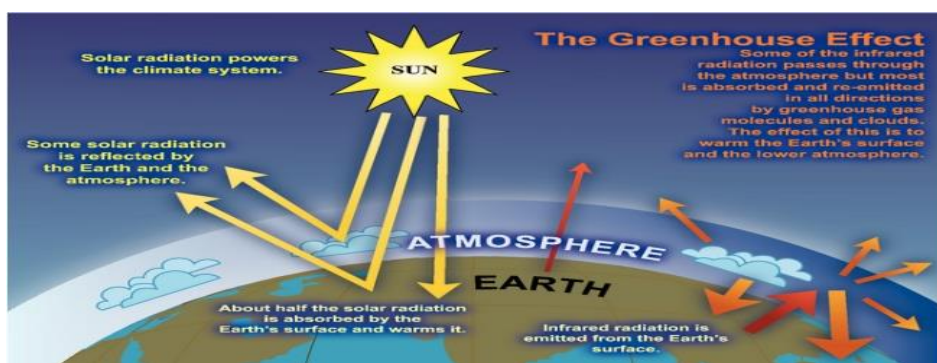


Fig 1. Showing greenhouse effect in atmosphere

The greenhouse influence upsurges the temperature of the earth by trapping heat in our atmosphere. This retains the temperature of the earth higher than it would be if direct heating by the sun was the only source of light. It gives information about despite the looming difficult energy counter in the majority of countries in the world, global change in environmental dignity disturbing phenomenon. The greenhouse gas and their impacts on global warming. The factor that earth has an average surface temperature pleurably between the boiling point and freezing point of the water. The made rate temperature are also the outcome of having just the precise kind atmosphere. Venus's atmosphere produces hellish, Venus like condition on planet earth; the mars atmosphere would leave earth shivering in a martin-type deep freeze.

Foundations of Greenhouse Effect

The greenhouse effect is mostly caused by the interaction of the sun's energy with greenhouse gases such as carbon dioxide, methane, nitrous oxide and fluorinated gases in the Earth's atmosphere. The ability of these gases to capture heat is what causes the greenhouse effect. Greenhouse gases consist of three or more atoms. This molecular structure makes it possible for these gases to trap heat in the atmosphere and then transfer it to the surface which further warms the Earth. This uninterrupted cycle of trapping heat clues to an overall increase in global temperatures. Procedure, which is very similar to the way a greenhouse works, is the main reason why the gases that can produce this outcome are collectively called as

greenhouse gases. The prime forcing gases of the greenhouse effect are: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases.

Reduction of Greenhouse Gases

There is keen interest in climate change issues due to a fast-increasing rate of GHG emissions. In recent years, one of the cheap modern and promising solutions to decreasing GHG emission into the Earth's atmosphere is the employment bioremediation technique. Other mitigation plans to avert the negative outcomes of greenhouse effect may include activities such as increase in tree planting, reduction in burning fossil fuels, exploitation of affordable, clean and renewable energy, carbon dioxide capture and sequestration etc. Another technique for reducing the negative effects of the greenhouse effect is to use methanotrophic endophytes inhabiting *Sphagnum* Spp. which can act as a natural methane filter. It can reduce CH₄ and CO₂ emission from peatlands by up to 50%. Studies have demonstrated potential ability of the plant–methanotrophic bacteria systems in the reduction of methane emission up to 77%, depending on the season and the host plant.

Greenhouse Effect

Atmospheric scientists first used the word 'greenhouse effect' in the later 1800s. At that time, it was used to designate the naturally happening functions of trace gases in the atmosphere and did not have any negative implications. It was not until the mid-1950s that the term greenhouse effect was attached to concern over climate alteration. And in contemporary decades, we often hear about the greenhouse effect in somewhat negative terms. The negative concerns are related to the possible impacts of an improved greenhouse effect. It is important to remember that without the greenhouse effect, life cycle on earth as we know it would not be possible. Scientists outline the percentage of solar energy reflected back by a surface. Understanding local, regional, and global effects are life-threatening to foretelling global climate change.

Sources of Greenhouse Gas Emissions

In recent times, one of the major sources of greenhouse gas (GHG) emission is from water resource recovery facilities (wastewater treatment plants (WWTPs)). Wastewater treatment plants (WWTPs) are recognized as one of the larger minor sources of GHG emissions. The WWTPs emit gases such as nitrous oxide (N₂O), carbon dioxide (CO₂), and methane (CH₄). Increasing emission of GHG from this source poses harm to our climate. The increasing rate of GHG emissions is due to the changes in the economic output, extended energy consumption, increasing emission from landfills, livestock, rice farming, septic processes,

and fertilizers as well as other factors. Increase industrialization, use of fertilizers, burning of fossil fuels and other human and natural activities result in a rise above normal average atmospheric temperature; thus, posing threat to our environment.

Greenhouse Gases and Global Warming

Gas molecules that captivate thermal infrared radiation, and are in a substantial amount, can force the climate system. These type of gas molecules are called greenhouse gases," Michael Daley, an associate professor of Environmental Science at Lasell College told Live Science. Carbon dioxide (CO₂) and other greenhouse gases turn like a blanket, gripping Infrared (IR) radiation and preventing it from evading into outer space. The net effect is the steady heating of Earth's atmosphere and surface, and this process is called global warming. Some human activities like the production and consumption of fossil fuels, use of various chemicals agriculture, burning bush, waste from incineration processes and other industrial activities have increased the concentration of greenhouse gases (GHG), particularly CO₂, CH₄, and N₂O in the atmosphere making them harmful. The greenhouse effect, collective with growing levels of greenhouse gases and the resultant global warming, is expected to have profound consequences, according to the near-universal consensus of scientists.

The Solar Radiation

The sun radiates gigantic quantities of energy into space, crosswise a wide spectrum of wavelengths. Utmost of the radiant energy from the sun is concentrated in the visible and near-visible portions of the spectrum. The narrow band of visible light, between 400 and 700 nm, signifies 43% of the total radiant energy emitted. Wavelengths shorter than the visible account for 7 to 8% of the total, but are extremely important because of their high energy per photon. The shorter the wavelength of light, the more energy it contains. Accordingly, ultraviolet light is very energetic (accomplished by breaking apart stable biological molecules and instigating sunburn and skin cancers). The residual 49 - 50% of the radiant energy is spread over the wavelengths longer than those of visible light. These lie in the near infrared range from 700 to 1000 nm; the thermal infrared, between 5 and 20 microns; and the far infrared regions. Various components of earth's atmosphere absorb ultraviolet and infrared solar radiation before it penetrates to surface, but atmosphere is transparent to visible light.

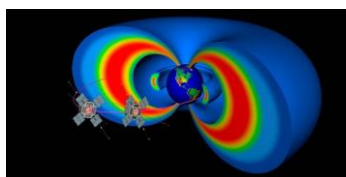


Fig 2 Radiations

Foundations of Greenhouse Effect

The greenhouse effect is mostly caused by the interaction of the sun's energy with greenhouse gases such as carbon dioxide, methane, nitrous oxide and fluorinated gases in the Earth's atmosphere. The ability of these gases to capture heat is what causes the greenhouse effect. Greenhouse gases consist of three or more atoms. This molecular structure makes it possible for these gases to trap heat in the atmosphere and then transfer it to the surface which further warms the Earth. This uninterrupted cycle of trapping heat leads to an overall increase in global temperatures. The procedure, which is very similar to the way a greenhouse works, is the main reason why the gases that can produce this outcome are collectively called as greenhouse gases. The prime forcing gases of the greenhouse effect are: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases.

Can the Greenhouse Effect be Overturned?

Several scientists approve that the impairment of the Earth's atmosphere and climate is long-gone the point of no reoccurrence or that the destruction is near the point of no return. "I agree that we have passed the point of avoiding climate change," Josef Werner, an associate professor at the department of geology & planetary science at the University of Pittsburgh. In Warner's opinion, there are three options from this point forward:

1. Do nothing and live with the moments.
2. Acclimatize to the changing climate (which includes things like rising sea level and related flooding).
3. Alleviate the impact of climate change by belligerently enacting policies that actually reduce the concentration of CO₂ in the atmosphere.

Keith Peterman, a Professor of Chemistry at York College of Pennsylvania, and Gregory Foy, an associate professor of chemistry at York College of Pennsylvania believes that the damage isn't to that point yet and that international agreements and action can save the planet's atmosphere.

CONCLUSION

Greenhouse gases include water vapor, CO₂, methane, nitrous oxide (N₂O) and other gases. Carbon dioxide (CO₂) and other greenhouse gases turn like a blanket, gripping Infra-Red radiation and preventing it from escaping into outer space. The clear effect of the greenhouse gases is the stable heating of Earth's atmosphere and surface, thus, global warming. The ability of certain gases, greenhouse gases, to be transparent to inbound visible light from the

sun, yet opaque to the energy radiated from the earth is one of the best still events in the atmospheric sciences. The existence of greenhouse effect is what makes the earth a comfortable place for life. The study also reveals the importance of greenhouse gases to the warming of the planet earth.

REFERENCES

1. Lacis AA, Schmidt GA, Rind D, Ruedy RA. Atmospheric CO₂: Principal control knob governing earth's temperature. *Science*.
2. Mohammed YS, Mokhtar AS, Bashir N, Abdullahi UU, Kaku SJ, Umar U. A synopsis on the effects of anthropogenic greenhouse gases emissions from power generation and energy consumption. *International Journal of Scientific and Research Publications*.
3. Bjorn Kustermann, Maximilian Kainz, Kurt-Jurgen Hulsbergen. Modeling carbon cycles and estimation of greenhouse gas emissions from organic and conventional farming systems. *Renewable Agriculture and Food Systems*.
4. Poojo T Latake, Poojo Pawar, Anil C. Ranveer. The greenhouse effect and its impact on environment.:
5. The Royal Society. *Climate change: A summary of the science*. London: The Royal Society Science Policy Centre;2010.
6. Archer David. *Global warming: Under-standing the forecast*. Malden, MA: Blackwell Pub; 2007.
7. Schultheis, Emily. Contradicting settled science, Donald Trump says "nobody really knows" on climate change. *CBSNews*; 2013.
8. Shine, Keith P, William T. Sturges. CO₂ is not the only gas. *Science*. JSTOR, CBS2016;1804-1805.
9. www.cbsnews.com/news/donald-trump-climate-change-nobody-really-knows/ (Accessed 10 May 2017)

