



## Mitigate Harmful Health Effects of Polluted Air by Using Fungal Approaches: A Review

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### Abstract

Nowadays, Air pollution has become a complex environmental and social problem in the world. Severe exposure to air pollutants like Carbon dioxide, Carbon monoxide, Nitrogen oxides, Sulphur dioxide, Ozone, and other gaseous substances can cause harmful health effects in people, such as adverse respiratory and cardiovascular conditions. Moreover, several factors can contribute to air pollution, and burning fossil fuels can consider the primary source. Factories, power stations, automobiles, wind-borne dust, and wildfires are just a few of the many causes that can pollute the air. Furthermore, air pollutants can be categorized according to their source, chemical composition, size, and method of release into indoor or outdoor environments. The main objective of the study is to address the current state of knowledge of the fungal-based approaches used as treatments for purification the polluted air. Because the application of fungi-based approaches against polluted air will be a more sustainable and reliable solution in the future than widely used conventional approaches. Especially, Fungi play a prominent role against the hydrophobic volatile organic compounds in purification. While the use of conventional methods to combat air pollution is more expensive and detrimental to the environment, the use of biological off-gas purification techniques against polluted air is an eco-friendly, more efficient, affordable, and sustainable technique that has the potential to reduce hazards resulting from polluted air. The bio-trickling filter is one of the frequently used techniques to degrade volatile organic air pollutants by using fungi. Moreover, *Fusarium* sp., *Candida* sp., *Cladophialophora* sp., and *Geotrichum* sp. are well-known fungal species for mitigating the adverse effects of polluted air. This review has described the strategies of fungal-based approaches which can be used as solutions in the future to address treatments for polluted air.

**Keywords:** Polluted air, Fungal approaches, Harmful health effects, Respiratory and cardiovascular diseases

