

Breathing in Toxicity: Harmful Algal Bloom Aerosols and Human Health Concerns

Chri Lim*

Department of Chemistry, University of Michigan, Ann Arbor, Michigan, USA

Abstract

Toxins from HABs can be incorporated into aerosols and transported inland, where subsequent exposure and inhalation can induce adverse health effects. However, the relationship between HAB aerosols and health outcomes remains unclear despite the potential for population-level exposures. In this review, we synthesized the current state of knowledge and identified evidence gaps in the relationship between HAB aerosols and human health. Aerosols from *Karenia brevis*, *Ostreopsis* sp., and cyanobacteria were linked with respiratory outcomes. Harmful algal blooms (HABs) have become a growing environmental concern in recent years, with their impacts reaching far beyond aquatic ecosystems. As these blooms proliferate, they can release harmful toxins into the air, leading to the formation of aerosols that pose significant risks to human health. In this article, we delve into the emerging yield of harmful algal bloom aerosols and the associated concerns for human health.

Keywords:

Harmful algal blooms, aerosols, human health, respiratory outcomes

Introduction

Harmful algal blooms (HABs) are a growing environmental concern in recent years, with their impacts reaching far beyond aquatic ecosystems. As these blooms proliferate, they can release harmful toxins into the air, leading to the formation of aerosols that pose significant risks to human health. In this article, we delve into the emerging yield of harmful algal bloom aerosols and the associated concerns for human health. The relationship between HAB aerosols and health outcomes remains unclear despite the potential for population-level exposures. In this review, we synthesized the current state of knowledge and identified evidence gaps in the relationship between HAB aerosols and human health. Aerosols from *Karenia brevis*, *Ostreopsis* sp., and cyanobacteria were linked with respiratory outcomes. Harmful algal blooms (HABs) have become a growing environmental concern in recent years, with their impacts reaching far beyond aquatic ecosystems. As these blooms proliferate, they can release harmful toxins into the air, leading to the formation of aerosols that pose significant risks to human health. In this article, we delve into the emerging yield of harmful algal bloom aerosols and the associated concerns for human health.

Aerosol formation

Aerosol formation is a complex process that involves the release of toxins from HABs into the air. The release of toxins from HABs into the air can occur through a variety of mechanisms, including the release of toxins from the surface of the bloom, the release of toxins from the interior of the bloom, and the release of toxins from the cells of the bloom. The release of toxins from HABs into the air can lead to the formation of aerosols that pose significant risks to human health. In this article, we delve into the emerging yield of harmful algal bloom aerosols and the associated concerns for human health.

Human health concerns

Human health concerns are a major focus of this review. The relationship between HAB aerosols and health outcomes remains unclear despite the potential for population-level exposures. In this review, we synthesized the current state of knowledge and identified evidence gaps in the relationship between HAB aerosols and human health. Aerosols from *Karenia brevis*, *Ostreopsis* sp., and cyanobacteria were linked with respiratory outcomes. Harmful algal blooms (HABs) have become a growing environmental concern in recent years, with their impacts reaching far beyond aquatic ecosystems. As these blooms proliferate, they can release harmful toxins into the air, leading to the formation of aerosols that pose significant risks to human health. In this article, we delve into the emerging yield of harmful algal bloom aerosols and the associated concerns for human health.

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***Corresponding author:** Chri Lim, Department of Chemistry, University of Michigan, Ann Arbor, Michigan, USA, E-mail: Limchris333@gmail.com

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