



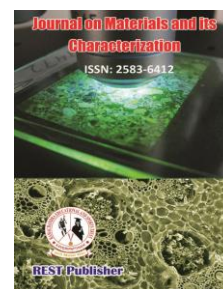
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A Review Study on *Dracaena trifasciata* (Snake Plant): Use for Interior Air Pollution, Benefits, and Associated Drawbacks

***¹Sagaya Mary B, ²Munnu Prasad V.**

**¹St. Aloysius Degree College & Post Graduate Research Centre, Frazer Town, Bengaluru, India.
JAIN (Deemed-to-Be-University), Whitefield Campus, Bangalore, India*

**Corresponding Author Email: sagubackianathan@gmail.com*

Abstract: *Dracaena trifasciata*, commonly known as the Snake Plant, has gained popularity as an indoor plant due to its purported air-purifying properties. This review examines existing research on the effectiveness of *Dracaena trifasciata* in reducing indoor air pollutants, its benefits, and potential drawbacks. The analysis highlights the plant's ability to remove volatile organic compounds (VOCs) from the air, its low maintenance needs, and its aesthetic appeal. Conversely, considerations such as its potential toxicity to pets and limitations in air purification efficacy are discussed. This paper aims to provide a comprehensive overview for both researchers and indoor gardeners interested in the utility of *Dracaena trifasciata*.

Keywords: *Dracaena trifasciata*, Snake Plant, Interior, Air Pollution, Benefits, Drawbacks, Oxygen, Carbon dioxide.

1. INTRODUCTION

Indoor air pollution is a significant concern, with sources ranging from household products to building materials. Plants have been identified as potential natural air purifiers, with *Dracaena trifasciata* being one of the most popular choices. This review aims to consolidate current knowledge on the effectiveness of *Dracaena trifasciata* in improving indoor air quality, along with its associated benefits and drawbacks.

2. LITERATURE REVIEW

Air Purification Capabilities: Several studies have investigated the air-purifying properties of *Dracaena trifasciata*. (Wolverton et al. 1989) conducted a NASA study that demonstrated the plant's ability to remove toxins such as formaldehyde, xylene, and toluene from the air. Subsequent research by (Orwell et al. 2004) confirmed these findings, suggesting that Snake Plants can effectively reduce concentrations of VOCs in indoor environments.

Mechanisms of Air Purification: The air purification process involves the absorption of pollutants through the leaves and roots, where they are metabolized by microorganisms in the soil. This symbiotic relationship enhances the plant's ability to clean the air, making it a viable option for improving indoor air quality (Sriprapat & Thiravetyan, 2013).

3. BENEFITS

Health Benefits: The reduction of indoor air pollutants has direct health benefits, including decreased respiratory issues and improved overall well-being (Fjeld, 2000). Moreover, the presence of indoor plants has

been associated with psychological benefits, such as reduced stress and increased productivity (Bringslimark, Hartig, & Patil, 2009).

Low Maintenance: *Dracaena trifasciata* is known for its resilience and low maintenance requirements. It can thrive in low light conditions and does not require frequent watering, making it an ideal choice for indoor environments (Chen et al., 2002).

Aesthetic Appeal: In addition to its functional benefits, *Dracaena trifasciata* is aesthetically pleasing, adding a touch of greenery to indoor spaces. This can enhance the visual appeal of homes and offices, contributing to a more pleasant living and working environment (Lohr & Pearson-Mims, 2000).

4. DRAWBACKS

Limited Air Purification Efficacy: Despite its benefits, the effectiveness of *Dracaena trifasciata* in purifying air may be limited. Studies suggest that while the plant can remove certain VOCs, the extent of purification may not be sufficient to significantly improve air quality in heavily polluted environments (Torpy et al., 2014).

Toxicity to Pets: *Dracaena trifasciata* contains saponins, which can be toxic to pets if ingested. This poses a risk to households with cats or dogs, necessitating precautions to prevent accidental ingestion (ASPCA, n.d.).

Space Requirements: While the plant itself does not require extensive care, its growth can be limited by the size of the pot. Larger specimens may need more space, which could be a constraint in small indoor environments (Chen et al., 2002).

Discussion: The review of existing literature highlights the dual nature of *Dracaena trifasciata* as both a beneficial and potentially problematic indoor plant. Its ability to remove certain VOCs and its associated health and aesthetic benefits make it a popular choice for improving indoor environments. However, limitations in air purification efficacy, potential toxicity to pets, and space requirements must be considered.

5. CONCLUSION

Dracaena trifasciata offers a range of benefits as an indoor plant, particularly in its role as a natural air purifier. While it may not be a comprehensive solution for indoor air pollution, it contributes to healthier and more aesthetically pleasing indoor spaces. Future research should focus on optimizing the air-purifying capabilities of indoor plants and addressing the drawbacks associated with their use.

Use in interior of House: At present days some Individuals and Offices use these plant in the interior of the places for purifying the air. Where, some of the present generation people give importance for oxygen concept. The awareness of the plant by the people are making them to adopt the requirements appropriately.

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