



## Microgreens: Cultivating Sustainable Solution for Urban Environment

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With the rapid pace of urbanization, cities around the world are facing numerous environmental challenges. Limited space, pollution, and a lack of access to fresh produce are some of the pressing issues that urban dwellers encounter. However, an emerging solution known as microgreens has gained momentum as a sustainable and efficient method to address these challenges. Microgreens involves cultivating and consuming microgreens, which are young, nutrient-dense plants, in urban settings. This article explores the concept of microgreens and highlights its potential as a sustainable solution for urban environments.

**What are Microgreens?** Microgreens are young seedlings of edible vegetables and herbs. Unlike larger herbs and vegetables that take weeks or months to grow, microgreens can be harvested and eaten a week to 10 days after the cotyledon — a part of the embryo within the seed leaves have developed. Microgreens are more similar to baby greens in that only their stems and leaves are considered edible. However, unlike baby greens, they are much smaller in size and can be sold before being harvested. This means that the plants can be bought whole and cut at home, keeping them alive until they are consumed. Microgreens are very convenient to grow, as they can be grown in a variety of locations, including outdoors, in greenhouses and even on your windowsill. Popular microgreen varieties include kale, radish, arugula, and broccoli. These tiny plants possess concentrated levels of vitamins, minerals, and antioxidants, making them a nutritious addition to any diet.

**Cultivating Microgreens:** Microgreens can be grown using a variety of methods, such as hydroponics, vertical farming, or even in small containers on windowsills. This versatility allows urban dwellers to cultivate these greens in limited spaces, such as balconies, rooftops, or indoor settings. Microgreens have a short growth cycle, typically ranging from one to three weeks, making them an ideal choice for urban farming.

### Benefits of Microgreens in Urban Environments

- Space Optimization:** Microgreen cultivation requires minimal space, making it suitable for urban environments where land availability is limited. Vertical farming techniques further maximize space utilization by growing microgreens in stacked layers.
- Nutritional Value:** Microgreens pack a nutritional punch, containing higher concentrations of essential nutrients compared to their mature counterparts. They are rich in vitamins A, C, and K, as well as minerals like iron and potassium, making them an excellent addition to a healthy diet.
- Environmental Sustainability:** Microgreen cultivation consumes fewer resources compared to traditional farming. It requires less water, no pesticides, and fewer fertilizers. Additionally, microgreens can be grown year-round, reducing the need for transportation and lowering carbon emissions associated with food miles.

d) **Food Security and Accessibility:** By growing microgreens locally in urban areas, communities can enhance their food security and access to fresh, nutritious produce. Microgreen farms can be established in food deserts, improving the availability of healthy options in underserved neighbourhood.

**Community Engagement and Education:** Microgreens offers an opportunity for community engagement and education. Urban dwellers can participate in workshops and community gardens to learn about microgreen cultivation techniques. Schools can incorporate microgreens into their curriculum, teaching students about sustainable agriculture, healthy eating habits, and the importance of local food production.

**Challenges and Future Considerations:** While microgreens holds great promise, it is essential to address potential challenges. These may include ensuring affordable access to seeds, promoting knowledge and technical support, and integrating microgreens into urban planning and policy frameworks. Collaborations between local governments, community organizations, and urban farmers can help overcome these challenges and promote the widespread adoption of microgreens initiatives.

### Health Benefits of Microgreens

Microgreens contain similar and often greater amounts of these nutrients than mature greens. As such, they may similarly reduce the risk of the following diseases:

- **Heart disease:** Microgreens are a rich source of polyphenols, a class of antioxidants linked to a lower risk of heart disease. Animal studies show that microgreens may lower triglyceride and “bad” LDL cholesterol levels.
- **Alzheimer’s disease:** Antioxidant-rich foods, including those containing high amounts of polyphenols, may be linked to a lower risk of Alzheimer’s disease.
- **Diabetes:** Antioxidants may help reduce the type of stress that can prevent sugar from properly entering cells. In lab studies, fenugreek microgreens appeared to enhance cellular sugar uptake by 25–44%.
- **Certain cancers:** Antioxidant-rich fruits and vegetables, especially those rich in polyphenols, may lower the risk of various types of cancer. Polyphenol-rich microgreens may be expected to have similar effects.

### Conclusion

Microgreens presents a sustainable and innovative solution for cultivating fresh, nutrient-dense produce in urban environments. With its potential to optimize space, provide nutritional value, promote environmental sustainability, and enhance food security and accessibility, microgreens has emerged as a viable approach to addressing the challenges faced by cities. By embracing microgreens, urban communities can embark on a path towards a greener, healthier, and more sustainable future.