



## Unleashing the Nutrient-Rich Power of Microgreens: Exploring Their Health Benefits

### 1. Komal Ojha

Department of Food Science and Nutrition, College of Community and Applied Sciences, Maharana Pratap University of Agriculture & Technology, Udaipur (Rajasthan), India

**Email:** [komalojha19.csa@gmail.com](mailto:komalojha19.csa@gmail.com)

### 2. Akansha Yadav

Department of Extension Education and communication Management, Maharana Pratap University of Agriculture & Technology, Udaipur (Rajasthan), India

*Received: November, 2023; Accepted: November, 2023; Published: January, 2024*

Microgreens are young, tender vegetable or herb plants that are harvested at an early stage of growth, typically within 7-21 days after germination. They are characterized by their small size, ranging from 1 to 3 inches in height, and the presence of fully developed cotyledon leaves or the first true leaves. Microgreens are cultivated from a variety of

seeds, including but not limited to lettuce, kale, radish, cilantro, and basil, and are typically grown in a soil medium or hydroponically. They are consumed fresh and are known for their intense flavors, vibrant colors, and high nutritional content, making them a popular ingredient in salads, sandwiches, and garnishes.

## Rich in Essential Nutrients

Microgreens are indeed rich in essential nutrients, despite their small size. The nutrient content can vary depending on the specific type of microgreen, but generally, they are packed with vitamins, minerals, and other beneficial compounds. Here are some essential nutrients commonly found in microgreens:

- 1. Vitamins:** Microgreens are a great source of various vitamins. They often contain high levels of vitamin C, which helps boost the immune system and supports collagen production. They can also provide significant amounts of vitamin K, which is essential for blood clotting and bone health. Additionally, microgreens can contain vitamins A, E, and several B vitamins, including folate.
- 2. Minerals:** Microgreens are rich in minerals such as potassium, iron, magnesium, and calcium. Potassium is important for heart health and maintaining proper fluid balance in the body. Iron is essential for oxygen transport and energy production, while magnesium supports nerve and muscle function. Calcium is crucial for strong bones and teeth.
- 3. Phytonutrients:** Microgreens are packed with phytochemicals, which are natural compounds that have been linked to

various health benefits. These phytonutrients include carotenoids (e.g., beta-carotene, lutein, and zeaxanthin), flavonoids, and glucosinolates. These compounds have antioxidant and anti-inflammatory properties, and some may have anticancer effects.

- 4. Fiber:** While the fiber content of microgreens may be relatively low compared to mature vegetables, they still contribute some dietary fiber. Fiber supports digestive health, helps maintain a feeling of fullness, and can assist in regulating blood sugar levels.
- 5. Essential Fatty Acids:** Certain types of microgreens, like purslane and chia, contain omega-3 fatty acids, which are beneficial for heart and brain health. However, the levels of omega-3 fatty acids in microgreens are generally lower compared to fatty fish or other dedicated sources.

It's worth noting that the nutrient content of microgreens can vary depending on factors such as the specific variety, growing conditions, and harvesting time. However, consuming a diverse range of microgreens can contribute to meeting your daily nutrient requirements and add valuable nutrition to your meals.

## Potential Health Benefits

Microgreens are young vegetable greens that are harvested when the plants are just a few weeks old, usually at the cotyledon stage. While they are small in size, they are packed with a concentrated amount of nutrients, which makes them a popular choice for garnishes, salads, and smoothie additions.

The consumption of microgreens has been associated with several potential health benefits. Here are some of them:

- 1. High nutrient content:** Microgreens are known to be rich in vitamins, minerals, and antioxidants. Since they are harvested at an early stage of growth,

they can contain higher levels of certain nutrients compared to their mature counterparts. Different varieties of microgreens can provide varying amounts of vitamins A, C, and K, as well as minerals like iron, potassium, and zinc.

2. **Antioxidant activity:** Microgreens are an excellent source of antioxidants, which help protect the body against harmful free radicals. Free radicals are unstable molecules that can cause cellular damage and contribute to chronic diseases like heart disease, cancer, and neurodegenerative disorders. The antioxidant compounds in microgreens, such as polyphenols and carotenoids, can neutralize free radicals and reduce oxidative stress.
3. **Anti-inflammatory properties:** Chronic inflammation is associated with various health issues, including heart disease, diabetes, and certain types of cancer. Some studies suggest that consuming microgreens may help reduce inflammation in the body. The high levels of antioxidants found in microgreens can help inhibit inflammatory processes and promote overall well-being.
4. **Potential cancer-fighting properties:** Microgreens contain a diverse range of bioactive compounds, including glucosinolates, which are sulfur-containing compounds found in cruciferous vegetables like broccoli and cabbage. Glucosinolates are known for their potential anti-cancer effects. When consumed, they can be converted into bioactive compounds like isothiocyanates, which have been shown

to inhibit the growth of cancer cells in preclinical studies.

5. **Blood sugar regulation:** Some research suggests that certain types of microgreens, such as red cabbage and cilantro, may help regulate blood sugar levels. These microgreens have been found to contain compounds that can improve insulin sensitivity and enhance glucose metabolism, potentially benefiting individuals with diabetes or those at risk of developing the condition.
6. **Heart health support:** The nutrients present in microgreens, such as folate, potassium, and fiber, are beneficial for cardiovascular health. Including microgreens in a balanced diet may help lower blood pressure, reduce cholesterol levels, and improve overall heart health.
7. **Weight Management:** With their low-calorie content and high fiber content, microgreens can contribute to weight management by promoting feelings of fullness, aiding digestion, and supporting healthy metabolism.
8. **Eye Health:** Microgreens rich in carotenoids, such as kale and spinach, provide essential nutrients for eye health and may help protect against age-related macular degeneration and other vision-related issues.

It's important to note that while microgreens offer potential health benefits, they should be consumed as part of a well-rounded diet and not as a sole source of nutrition. As with any dietary changes, it's advisable to consult with a healthcare professional or registered dietitian to determine the best approach for your specific health needs.

## Incorporating Microgreens into Your Diet

- A. **Salads and Sandwiches:** Microgreens add a burst of flavor and texture to salads, sandwiches, wraps, and burgers. They can be used as a topping or mixed into the base for added freshness and nutritional value.
- B. **Smoothies and Juices:** Blend microgreens into smoothies or juices to infuse them with an extra nutritional

boost. They pair well with fruits and vegetables, offering a vibrant and nutrient-dense drink.

- C. **Garnish and Culinary Enhancer:** Use microgreens as a garnish or finishing touch to elevate the visual appeal and flavor of various dishes, including soups, stir-fries, omelets, and pasta dishes.

## Conclusion

Microgreens are a powerhouse of nutrients, delivering an impressive array of vitamins, minerals, and antioxidants. By incorporating these miniature greens into your diet, you can unlock their potential health benefits,

supporting overall well-being and enjoying the vibrant flavors they bring to your culinary creations. Embrace the wonders of microgreens and savor their nourishing impact on your health and lifestyle.

## References

1. Xiao, Z., Lester, G. E., Luo, Y., Wang, Q., & Yu, L. (2012). Assessment of vitamin and carotenoid concentrations of emerging food products: edible microgreens. *Journal of Agricultural and Food Chemistry*, 60(31), 7644-7651.
2. Guo, R., Yuan, G., Wang, Q., & Wang, Q. (2017). Effect of light conditions on quality and phytochemicals in green and red pigmented lettuce microgreens. *Frontiers in Plant Science*, 8, 1977.
3. Chandrasekaran, M., & Bahkali, A. H. (2013). Valorization of microgreens as functional food. In *Handbook of functional foods* (pp. 197-212). CRC Press.
4. Song, J., Hu, W., Yu, L., Zhao, Y., & Zhu, M. (2015). Effect of storage temperature on antioxidant properties of edible flowers and microgreens. *Food Chemistry*, 167, 298-304.
5. Zhang, D., Hamauzu, Y., & Xu, C. (2018). Antioxidant and anti-inflammatory activities of selected microgreens and watercress. *Food Science and Technology Research*, 24(2), 331-338.
6. Li, Y., Yao, J., Han, C., Yang, J., & Chaudhry, M. T. (2020). Antioxidant activities of microgreens and their effect on lipid oxidation in pork patties. *Food Science and Human Wellness*, 9(2), 144-152.
7. Prakash, D., & Pal, M. (2017). Microgreens: Production, shelf life, and bioactive components. *Food Reviews International*, 33(2), 180-201.
8. Hefnawy, T. M., Khalil, A. K., Elnagar, M. E., & Nasr, N. M. (2020). The potentiality of microgreens in human nutrition and food security. *Annals of Agricultural Sciences*, 65(1), 88-97.