

## Microgreens: A Miracle Food and A New Beginning Towards Nutrition

**Mousumi Malo**

Research Scholar, Department of Agronomy  
Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, West Bengal, India

**ARTICLE ID: 031**

### Introduction

Food security and good health has become major important issues in all of the countries more specifically in developing countries in the present world. Due to continuing alterations in our ecosystem services and rapid climatic change, a huge burden is imposed on reliable food production to facilitate healthful condition to the world's ever increasing population. In the current situation, 1 in 8 individuals already suffers from chronic undernourishment or malnutrition including many are subjected to diabetes, cardiovascular diseases, cancer, obesity, hypertension, stroke and other metabolic disorders that have also reached global epidemic proportions due to imbalanced food consumption patterns. In developing countries like India, 13.5% people are chronically undernourished with Western-Asia and Sub-Saharan Africa, the most severely affected regions (Anonymous, 2015). Vegetables are often referred to as protective food in view of nutritive and medicinal values and serve as one of the important components of Indian agriculture towards nutritional security of people. Now-a days, non-availability of fresh and pesticide residue free vegetables for consumption is increasingly becoming major concern for vegetarian population of our country. In this context, it is very much essential to take into account few alimentary traditions and the social value of food practices that have been lost with time. Functional foods are quite comparable to conventional foods alongside providing certain health benefits beyond basic nutritional functions. Micro greens are such type of foods that are gaining popularity nowadays. Being a new class of edible vegetables with lots of potential to cure various deficiencies (Pinto *et al.*, 2015), micro greens present a homestead option towards nutritional security. There are more than 25 micro greens commercially grown all over the world. These are approximately 4-6 times more nutrient dense than their mature counterparts

(Xiao *et al.*, 2012). Therefore, micro greens can be termed as ‘Functional foods’, which have health promoting or disease preventing properties.

### What are Micro greens?

Micro greens are considered as baby plants or young vegetable greens that are approximately 1–3 inches/2.5–7.5 cm tall; have an aromatic flavour and concentrated nutrient content; come in a variety of colours and textures; are used as a nutrition supplement, visual enhancer, and a flavour and texture amplifier and should be harvested 7–21 days after germination just after the cotyledon leaves have developed and possibly, with one set of true leaves.



They fall somewhere between a sprout and baby green and shouldn't be confused with sprouts, which do not bear leaves. Micro greens are much more similar to baby greens as their stems and leaves are treated as edible parts; nevertheless, unlike baby greens, they are much smaller in size and can be sold before being harvested. Micro greens are very convenient to grow, as they can be grown in a variety of locations, including outdoors, in greenhouses and even on our windowsill.

Micro greens can add sweetness and spiciness to foods. Among upscale grocers, they are now regarded as special genre of greens which are good for garnishing salads, soups, sandwiches and plates and also can be used as a main vegetable as well as in certain recipes for intense flavour and nutrition.

### Different Types of Micro greens

Micro greens can be grown from different types of seeds. The most popular varieties are produced from the following plant families:

- **Brassicaceae:** Cauliflower, broccoli, cabbage, watercress, radish and arugula
- **Asteraceae:** Lettuce, endive, chicory and radicchio
- **Apiaceae:** Dill, carrot, fennel and celery

- **Amaryllidaceae:** Garlic, onion, leek
- **Amaranthaceae:** Amaranth, quinoa swiss chard, beet and spinach
- **Cucurbitaceae:** Melon, cucumber and squash

### **Micro greens Are Nutritious/ Health Benefits of Micro-greens**

1. Micro-greens are packed with different beneficial nutrients; most of the varieties tend to be rich in potassium, iron, zinc, magnesium, copper etc.
2. They are a rich source of beneficial plant compounds like polyphenols and other antioxidants.
3. They often contain higher vitamin and mineral levels than the same quantity of mature greens.
4. According to research, nutrient levels in micro greens can be up to nine times higher than those found in mature greens.

Micro greens may reduce the risk of the following diseases:

1. **Heart disease:** Micro greens are a rich source of poly phenols, a class of antioxidants which is linked to a lower risk of heart disease. They may also lower triglyceride and “bad” LDL cholesterol levels.
2. **Alzheimer’s disease:** Antioxidant rich foods, including those containing high amounts of poly phenols, may be linked to a lower risk of Alzheimer’s disease.
3. **Diabetes:** Antioxidants may help to reduce the type of stress that can prevent sugar from properly entering cells.
4. **Certain cancers:** Poly phenols rich micro greens may be expected to have positive effects on certain cancer affected people.

### **Some Challenges of Micro greens**

1. **Weak and skinny:** The plants need more light compared to their mature counterparts, otherwise micro-greens may become weak and skinny.
2. **Overcrowding:** Excessive dense sowing may cause damping off; however, it can be easily overcome by treating the media by *Trichoderma*.
3. **Wrong sowing time:** Some seeds may not germinate at very high or very low temperature.
4. **Over soaking:** Over soaking of seeds may result in dead seeds.

## List of Some Important Micro greens

Commercial name	Botanical Name	Family	Colour
Arugula	<i>Eruca sativa</i> Mill.	Brassicaceae	Green
Bull's blood beet	<i>Beta vulgaris</i> L.	Chenopodiaceae	Reddish green
Celery	<i>Apium graveolens</i> L.	Apiaceae	Green
Cilantro	<i>Coriandrum sativum</i> L.	Apiaceae	Green
Garnet amaranth	<i>Amaranthus hypochondriacus</i> L.	Amaranthaceae	Red
Golden pea tendrils	<i>Pisum sativum</i> L.	Fabaceae	Yellow
Green basil	<i>Ocimum basilicum</i> L.	Lamiaceae	Green
Green daikon radish	<i>Raphanus sativus</i> L.	Brassicaceae	Green
Magenta spinach	<i>Spinacia oleracea</i> L.	Chenopodiaceae	Red
Mizuna	<i>Brassica rapa</i> L.	Brassicaceae	Green
Opal basil.	<i>Ocimum basilicum</i> L.	Lamiaceae	Greenish purple
Opal radish	<i>Raphanus sativus</i> L.	Brassicaceae	Greenish purple
Pea tendrils	<i>Pisum sativum</i> L.	Fabaceae	Green
Pepper cress	<i>Lepidium bonariense</i> L.	Brassicaceae	Green
Popcorn shoots	<i>Zea mays</i> L.	Poaceae	Yellow
Purple kohlrabi	<i>Brassica oleracea</i> L.	Brassicaceae	Purplish green
Purple mustard	<i>Brassica juncea</i> L.	Brassicaceae	Purplish green
Red beet	<i>Beta vulgaris</i> L.	Chenopodiaceae	Reddish green
Red cabbage	<i>Brassica oleracea</i> L.	Brassicaceae	Purplish green
Red mustard	<i>Brassica juncea</i> L.	Brassicaceae	Purplish green
Red orach	<i>Atriplex hortensis</i> L.	Chenopodiaceae	Red
Red sorrel	<i>Rumex acetosa</i> L.	Polygonaceae	Reddish green
Tartary buck wheat	<i>Fagopyrum tataricum</i> L.	Poaceae	Green

Source: Xiao *et al.*, (2012)

## Conclusion

In recent years, consumption of micro greens has increased along with consumer awareness and appreciation for their tender texture, distinctive fresh flavours, vivid colours and concentrated bio-active compounds such as vitamins, minerals, antioxidants etc. as compared to mature leafy greens. The first documented use of the word 'Micro greens' was started in USA during 1998. Dozens of different types of vegetables can be planted to produce micro greens, with a range of tastes such as mellow, spicy, tangy, earthy, nutty and crisp. Some of the most common varieties which can be sown and harvested as micro greens are basil, parsley, cilantro, radish, salad burnet, fennel, chervil, mustard, kale, collards, cabbage, carrot, beet etc. The significance of this crop has been emphasised not only in the context of developing countries but also in developed world. It can play a remarkable role in up scaling economies, giving a new export market and in national subsistence in distant future. Notwithstanding, micro greens as 'miracle food' can be considered as a strategic crop to supplement the diet chart in rural or marginal areas where energy and protein malnutrition jeopardizes most of the population of developing countries. However, micro greens may be encouraged as extremely healthy food, super food of the future and food of the twenty first century.

## References

- Anonymous. (2015). Indian Horticulture Database, National Horticulture Board, Ministry of Agriculture, GoI, Gurgaon, India.
- Pinto, E., Almeida, A.A., Aguiar, A.A. and Ferreira, I.M.P.L.V.O. (2015). *J. Food Comp. Anal.*, **37**: 38-43.
- Xiao, Z., Lester, E.G., Luo, Y. and Wang, Q. (2012). *J. Agric. Food Chem.*, **60**: 7644-7651.