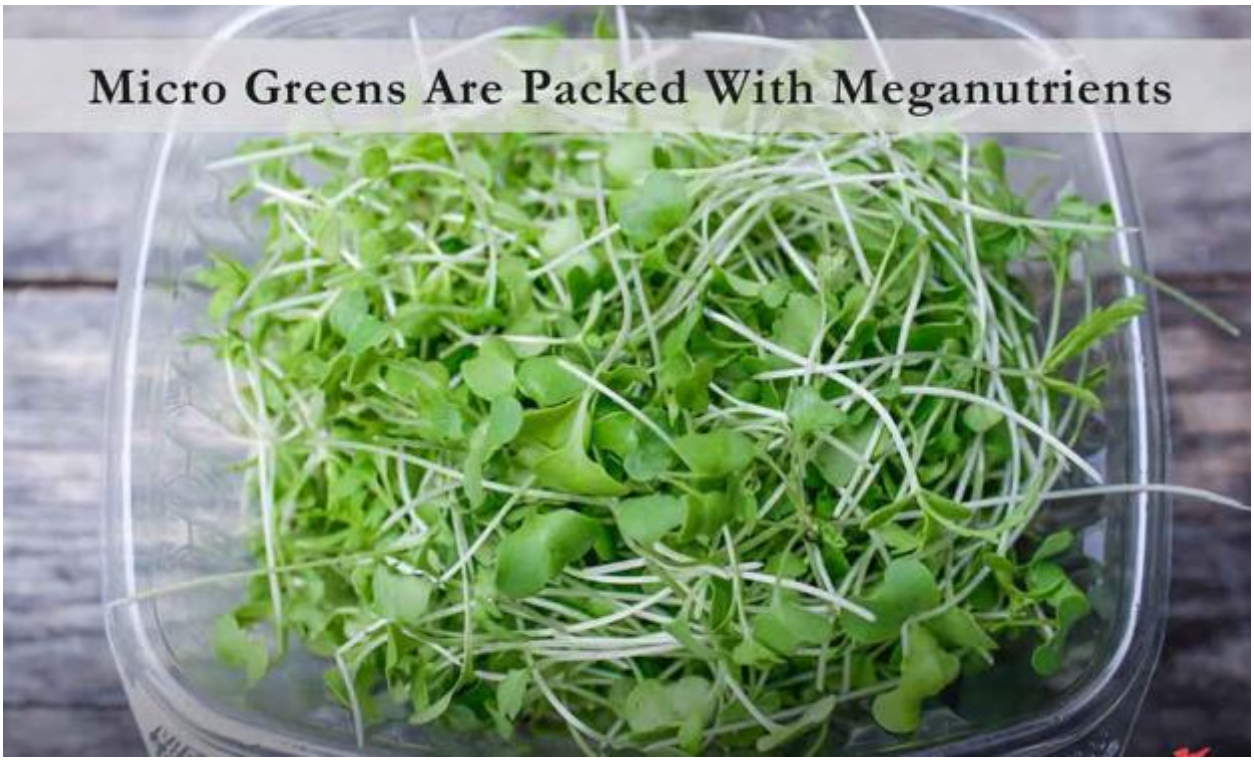
MICROGREENS

by MINK Organics, Jalandhar - 98150-87864

Microgreens are new emerging food products, which are young seedlings of vegetables and herbs, having two fully developed cotyledons with the first pair of true leaves emerging or partially expanded. They have gained popularity in upscale restaurants and grocery stores in recent years.

Microgreens Have Up to 40 Times More Vital Nutrients Than Mature Plants



Microgreens are already popular in North America and also in North Europe, Asia and Oceania and are increasingly used by haute cuisine chefs to prepare gourmet dishes intended to

satisfy the needs of modern consumers, more and more health conscious and particularly attentive to their health, diet and food quality.
Although are often used with the main aesthetic purpose of garnishing dishes, microgreens also have a very good nutritional content and represent, today, one of the most interesting innovations in the market of fresh fruit and vegetables to the extent that they are considered ‘functional foods’ or ‘super foods’ (Treadwell et al., 2010) as, in addition to the intake of nutrients, they can also provide bioactive compounds able to improve some functions of the organism and/or reduce the risk of diseases.
A recent study, conducted by a group of researchers of the U.S. Department of Agriculture (USDA) and the University of Maryland, analyzing the concentration of vitamins (Vitamin C, E and K) and carotenoids (β-carotene, lutein and zeaxanthin) in twenty five varieties of microgreens, demonstrated that as compared to regular vegetables, harvested at the standard commercial ripening stage, microgreens have a content of antioxidant compounds even ten times higher (Xiao et al., 2012).

For instance, in the case of the red cabbage, comparing the amount of the above-mentioned vitamins in the microgreens with those reported in the literature for the same species harvested at a regular ripening stage, microgreens showed an average content of Vitamin C six times higher (147 vs 23.5 mg/100 g of fresh product - FP), a four hundred times higher value of Vitamin E (24.1 vs 0.06 mg/100 g of FP) and a sixty

times higher content of Vitamin K (2.4 vs 0.04 µg/g of FP) (Xiao et al., 2012).

Considering the daily intake levels recommended by the European Food Safety Authority (EFSA) for Vitamin C (60 mg), Vitamin E (13 mg) and Vitamin K (70 µg) for an adult of medium weight, given the content of Vitamin C, E and K estimated in the same study, for some of the species analyzed it is possible to demonstrate that even few grams of microgreens can entirely satisfy the recommended daily intake of these three vitamins (Table 1).

Thanks to their distinctive peculiarities, microgreens represent a rich food source also for categories of consumers particularly demanding, like vegetarians and vegans, that can diversify and enrich their diet by using the

large variety of microgreens available. Moreover, being the

Table 1 – Contents of ascorbic acid (vitamin C), α-tocopherol (vitamin E) and phylloquinone (vitamin K) in some species of microgreens and relative amount of fresh product (FP) necessary to satisfy the recommended daily intake of each vitamin for an adult [1,2].

Microgreen	Species	Vitamin content			Amount of FP necessary to satisfy the recommended daily intake of:		
		Vit. C	Vit. E	Vit. K	Vit. C	Vit. E	Vit. K
		mg/100 g FP	mg/100 g FP	μg/g FP	g	g	g
Garnet amaranth	*Amaranthus hypochondriacus* L.	131.6	17.1	4.1	46	76	17
Opal basil	*Ocimum basilicum* L.	90.8	24.0	3.2	66	54	22
Red beet	*Beta vulgaris* L.	46.4	34.5	2.0	129	38	35
Red cabbage	*Brassica oleracea* L. var. *capitata*	147.0	24.1	2.8	41	54	25
Cilantro	*Coriandum sativum* L.	40.6	53.0	2.5	148	25	28
Peppercress	*Lepidium banariense* L.	57.2	41.2	2.4	105	32	29
Pea tendrils	*Pisum sativum* L.	50.5	35.0	3.1	119	37	23
Green radish	*Raphanus sativus* L.	70.7	87.4	1.9	85	15	37
Arugula	*Eruca sativa* Mill.	45.8	19.1	1.6	131	68	44
Celery	*Apium graveolens* L.	45.8	18.7	2.2	131	70	32
Popcorn shoots	*Zea mays* L.	31.8	7.8	0.9	189	167	78
Golden pea tendrils	*Pisum sativum* L.	25.1	4.9	0.7	239	265	100

1 Average values of vitamin C, E and K measured by Xiao et al. (2012).
2 The daily intake recommended by the EFSA for adults is 60 mg for vit. C, 13 mg for vit. E and 70 μg for vit. K.

microgreens usually consumed raw, they can also satisfy the specific needs of the so called raw foodists.

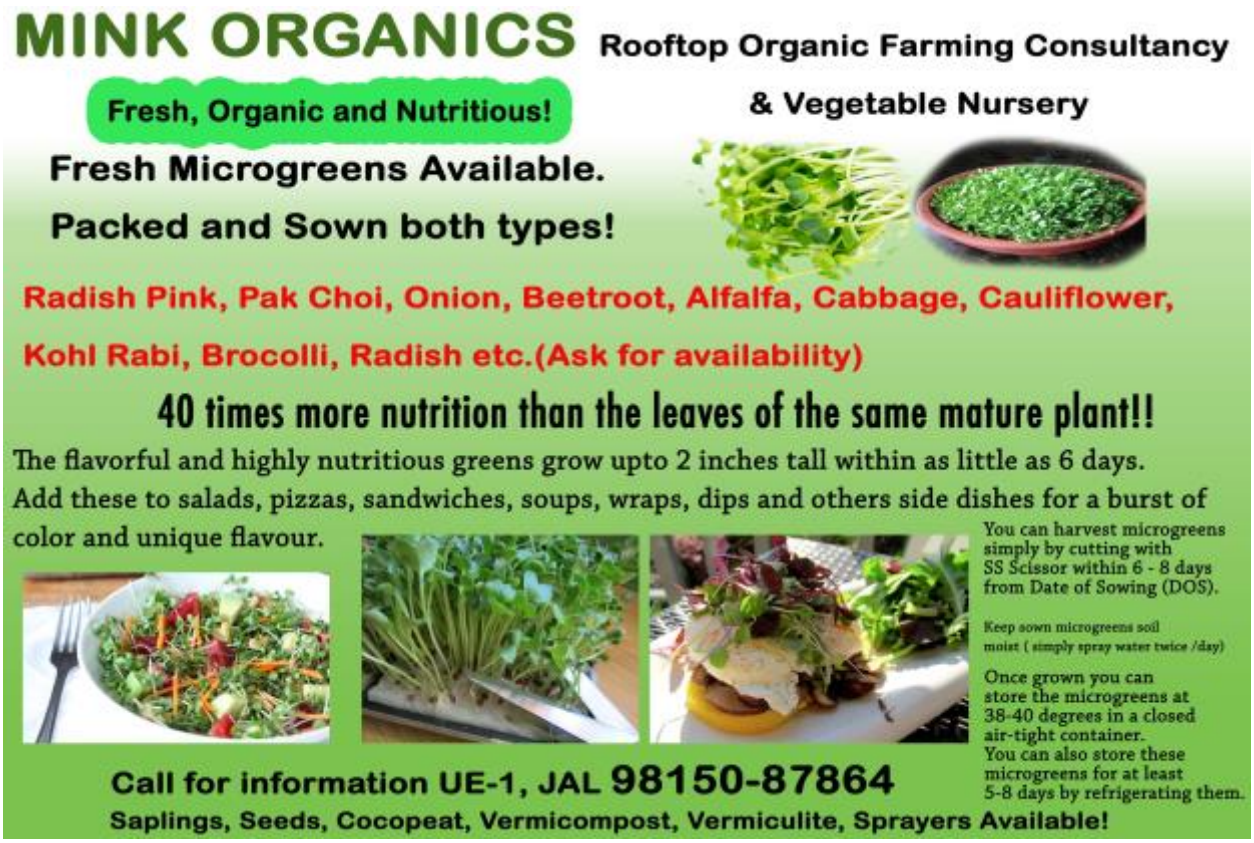
Also,In a research it was seen that microbial growth on sprouts were much faster than that on microgreens, which poses great risk of microbiological hazard to sprout-consumers. In contrast, microgreens seem to bear a relatively low food safety risk.

Why MICROGREENS?

- ✓ Up to 40 times more nutritional than mature vegetable.
- ✓ High Water content
- ✓ Grown in sunlight
- ✓ No bacterial growth which can be there in sprouts
- ✓ Rich taste and Colour
- ✓ Great for garnishing
- ✓ Used in Salads, Soups, Pizzas, Pronthi etc.

Why MINK Organics?

- ✓ 100% Organic
- ✓ Grown in clean and hygienic conditions
- ✓ Washed with purified water
- ✓ Grown without Soil
- ✓ Non Hybrid and Non GMO Seeds
- ✓ Pure Variety seeds used
- ✓ Available in packed as well as Sown Form!



Few Articles:

http://www.healwithfood.org/health-benefits/microgreens-nutrition.php

https://www.webmd.com/diet/news/20120831/tiny-microgreens-packed-nutrients#1

http://nutritionfacts.org/2013/05/02/are-microgreens-healthier/
http://www.healwithfood.org/health-benefits/microgreens-nutrition.php

https://www.medicalnewstoday.com/articles/316075.php