

INNOVATION 2015: VEGETABLE PRODUCE NATURALLY ENRICHED IN LITHIUM AND SELENIUM

With the aim of ensuring a diet rich in diversified trace minerals, I.D.TECH S.r.l. has privileged treating plants during growth (i.e. **'agronomic biofortification'**) with solutions featuring trace mineral integrators i.e. aqueous solutions containing lithium and/or selenium and natural adjuvants (henceforth "Spray Solutions") so as to naturally enrich **fruits, vegetables, grains, rice, aromatic herbs** and their by-products with said microelements.

The absorption of micronutrients and their transfer to the edible parts of the plants is increased by applying Spray Solutions to the leaves. Leaf applied substances enter the leaf either by penetration of the cuticle or via the stomatal pathway. Therefore, our foliar spray solution is one of the most effective and safest approaches to enrich the essential microminerals in crop grain and vegetable produce: "green" for the environment and without effect on the soil (i.e. a **natural and ecological technique, friendly for plants, animals and human beings WITHOUT the use of GMOs**).

In fact, if on the one hand, selenium is recognized as an antioxidant and anti-cancer, on the other, lithium, according to recent studies carried out in Universities in Germany and Japan, when administered in minimum doses, seems to have, on both the animal and human model, the effect of increasing life expectancy and preventing some diseases, such as Alzheimer's and others that affect neuronal functioning. **Hence from their combination comes a health product of immense importance.**

The results of said research and field testing have led to an **Italian patent** and the application for an **international patent** (PCT/EP2012/076474) centered on the possibility of enriching crops during growth in these two trace minerals by spraying them with a targeted and customized aqueous solution containing the salts of these elements and the appropriate adjuvants.

FIELD TESTING RESULTS (a few case histories)

The following results seem particularly useful, considering that selenium and lithium are included in dietary references (i.e. RDA or Recommended Daily Allowance) in 0.055-0.070 mg (55-70 µg micrograms) and about 0.500-1 mg. (500-1000 µg micrograms), respectively.

Schedule on Natural Enrichment in Selenium and Lithium (on field)

Results of field treatment using the Spray Solution	Selenium Increase up to (µg/kg)	Lithium increase up to (µg/kg)	Selenium (µg) Intake of 100 g (% RDA 55-70)	Lithium (µg) Intake of 100 g (% RDA 500-1000)
Rice	900 (starting from 36)	450 (starting from 5)	up to 90 (i.e. up to 163.63-128.57% of the RDA)	up to 45 (i.e. 9-4.5% of the RDA)
Soya	2148 (starting from 675)	9 (starting from 4)	up to 214,8 (i.e. up to 390.54-306.85% of the RDA)	up to 0,9 (i.e. up to 0.18-0.09% of the RDA)
Kiwi	220 (starting from 30)	27 (starting from 8)	up to 22 (i.e. up to 40-31.42% of the RDA)	up to 2,7 (i.e. up to 0.54-0.27% of the RDA)
Grapes	220 (starting from 2-6)	360 (starting from 40)	up to 22 (i.e. up to 40-31.42% of the RDA)	up to 36 (i.e.7.2-3.6% of the RDA)
Wine	45 (starting from 1-5)	320 (starting from 20-40)	Up to 4.5 (i.e. up to 8.18-6.42% of the RDA)	up to 32 (i.e. 6.4-3.2% of the RDA)
Potatoes	220 (starting from 12)	400 (starting from 43)	Up to 22 (i.e. up to 40-31.42% of the RDA)	Up to 40 (i.e. 8-4% of the RDA)
Lettuce	27 (starting from 1)	23 (starting from 19)	Up to 2.7 (i.e. up to 4.9-3.8% of the RDA)	Up to 2.3 (i.e. up to 0.46-0.23% of the RDA)

Note: to date, the RDA of lithium has not been officially determined. However, a quantity of 500-1000 µg is no doubt confirmed by well-established scientific literature. In any case, it is possible to modulate the spray solution so as to further increase the lithium content in vegetable produce.

FUNCTIONAL VALUE OF LITHIUM

- ✓ Improves the state of mind/mood
- ✓ Stimulates the transfer of vitamins to brain cells
- ✓ Increases life expectancy (decrease mortality)
- ✓ Reduces aggressiveness
- ✓ Protects the neuronal system and brain cells
- ✓ Reduces the risk of Alzheimer's
- ✓ Anti-aging capabilities

FUNCTIONAL VALUE OF SELENIUM

- ✓ Reduces the risk of death and the cognitive decline in the elderly
- ✓ Reduces thyroid gland infections and the concentration of own antibodies
- ✓ Strengthens the immune system
- ✓ Increases male and female fertility
- ✓ Reduces cardiovascular risks as it prevents plasma lipid oxidation
- ✓ Anti-cancer effect in several types of cancer