ATTACHMENT:

Useful remarks for patient and doctor, to be associated to the analytical results. Your doctor should interpret this report.

Cod. ID: 123456
CCV: 000
Date: 01/01/2014
Patient: Rossi Mario

Rapport de:
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MINERAL EVOLUTION
(Hair tissue mineral evaluation)

HAIR TISSUE MINERAL ANALYSIS

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HAIR TISSUE MINERAL ANALYSIS

The tissue mineral analysis (trace mineral analysis) is conducted on a hair sample, to evaluate the level of essential minerals for health and the main toxic minerals in body cells in the three/four months prior to the analysis. This analysis is a biopsy to all effects of body tissue.
Unlike blood tests, which photograph the state of the body at the time the sample is effectively taken, the hair analysis measures the average mineral level in the cells over a longer time period. The level of minerals that is read better corresponds to the level the tissue effectively reaches, and which is involved in the cell renewal and repair mechanisms and also in the metabolic processes. High mineral levels can often indicate their low bioavailability, due to poor use, and therefore their reduced activity in the biological reactions they should be involved in. Low mineral levels indicate their low effectiveness, due to insufficient content in the diet, to impeded absorption (for example by antagonist minerals) and to excessive elimination

MINERALS

Minerals are fundamental regulators of all the functions and activities the body performs every day, those of the nervous system, endocrine system and the metabolic processes. An unbalanced diet, abuse of drugs, stress, smoke, pollution, acute or chronic disorders can create deficiencies in these substances and create numerous other disorders. Therefore it is fundamental to monitor the balances and unbalances between the physiological minerals and the toxic minerals, which affect our health and wellbeing.

NUTRIENT MINERALS

All the chemical actions take place inside the cells that convert food into energy and enable us to live. These chemical reactions only occur if the body contains certain minerals to catalyse, or activate, the reactions. A deficiency of essential minerals (Calcium, Sodium, Potassium, Phosphorous, Magnesium, Iron, Zinc, Chrome, Manganese, Selenium, Copper, etc.) is often due to a diet that contains a majority of refined foods, prepacked and industrial products, with insufficient wholemeal products, fresh seasonal fruit and vegetables, and also due to poor absorption due to unbalanced bacterial flora and poor intestinal absorption disorders. Over recent years, we have seen a progressive and constant increase in the number of cases showing an excess of certain essential minerals, which, in the majority of cases, are due to an excessive use of food supplements. The body cannot tolerate either the deficiencies or the excesses of minerals, and these situations lead to an alteration in functional balance, often shown by disorders that are difficult to diagnose, poor body functions and a build-up of minerals in tissues where they should not be.

SILVER - effective antibacterial, antimycotic, antiviral. It helps reduce inflammation, stimulating the regrowth of damaged cells. Helps strengthen the body’s natural defences.

BORON - aids the absorption of Calcium, reducing the loss of Magnesium. An antagonist of vitamin B2, therefore high Boron levels could affect the correct absorption and use of this vitamin. Foods richest in boron are: cauliflower, dates, mushrooms, green pulses, almonds, pears, plums and grapes.

CALCIUM - a more abundant mineral in bones. It works in the nervous and cellular processes as a signal and activator of cellular response to stimuli. It works in muscular contraction and as a buffer system in the body. Foods rich in calcium are nuts, spices, green leafy vegetables, milk and cheese.

COBALT - plays an integral part of the vitamin B12 family: it assures growth and maintains body weight; catalyser in DNA synthesis, involved in iron metabolism; it stimulates the exocrine glands, enabling the correct thyroid, pancreas and suprarenal gland functions; it is an antagonist of Iron. It is mainly found in dairy produce, meat, mussels, mushrooms, wholemeal cereals, fruit and vegetables.

CHROME - Improves the insulin function in the cells, improving the glucide, lipid and protein metabolism in the body. It is used as a supplement in slimming diets. Good sources of chrome are broccoli, grapes, wholemeal cereals, meat and dairy produce.

IRON - necessary for synthesis of haemoglobin, myoglobin and collagen. It works in the cellular respiration processes. It works in the metabolism of nucleic acids (DNA and RNA). Foods rich in iron are meat and liver, pulses, shellfish, nuts and green vegetables. Its absorption is improved with contents of Copper and vitamin C, impeded by an excess of Calcium, Zinc, phytates, tea, coffee, antacids.

PHOSPHOROUS - mainly found in the teeth and bones: it acts as an energy store in the form of ATP; it

regulates the blood pH; it is one of the components of proteins and nucleic acids; it regulates important biochemical processes and activation of certain vitamins. It is mainly found in proteins (dairy produce, meat, fish, eggs, pulses) and certain vegetables.

LITHIUM - in certain physiological conditions traces are found in the body; lithium salts are used to treat states of mania and recurring depression. The main toxic effects are kidney disorders, neurological, gastrointestinal disorders, hypothyroidism, arrhythmia.

MAGNESIUM - mainly found in the bones, and also in the cells; it helps the good muscular and nervous functions, regulates the heartbeat, keeps the immune system active; strengthens bones. It is involved in energy metabolism and protein synthesis; it regulates intestinal passage. It is found in green leafy vegetables, pulses (beans and peas), nuts, seeds and wholemeal cereals.

MANGANESE - enzyme activator in the metabolic synthesis processes of amino acids and sugars, and in antioxidant processes. It is an integrative part of Superoxide Dismutase, and important antioxidant. Its absorption competes with that of Iron and Cobalt, and is impeded in the case of fibres, calcium, phosphorous and phytates. The main food sources are cereals, wine, tea, pulses, potatoes, walnuts, egg yolks and cacao.

MOLYBDENUM - aids the metabolism of fats and carbohydrates, and works in certain oxidation reactions. It seems to play an active role in treating colitis and ulcers. It helps the excretion of Copper with Zinc. The main food sources are milk and by-products, pulses, wholemeal cereals, dark green vegetables, liver.

NICKEL - involved in hormonal metabolism. It helps maintain cell membrane intact; it activates numerous enzymes; it plays a role in glucide and lipid metabolism; stabilizes DNA. It can cause allergic reactions, especially dermatological, both due to contact and ingestion. It is found in many different vegetables, fruit, pulses and nuts.

GOLD - used to treat rheumatoid arthritis for its anti-inflammatory properties to reduce pain. It also improves appetite and digestion, helps increase muscle mass and physical strength.

POTASSIUM - proportional to muscle mass and Nitrogen content; together with Sodium a fundamental regulator of cell excitability, and their response to impulses; regulates the base-acid balance and electrolytes. Thyroid functions can affect the levels of this mineral. Potassium is found in all foods, much more in fresh than in frozen foods.

COPPER - fundamental for the good brain, heart and immune functions, and aids many enzymatic activities; necessary for haemoglobin, collagen and noradrenaline synthesis; an important antioxidant; works in melanin synthesis; works in protein and lipid metabolism; improves the immune response functions. If is found in brewer’s yeast, wholemeal cereals, nuts, green leafy vegetables, molluscs, shellfish, molasses, cauliflower, offal, eggs, pulses.

SELENIUM - part of the glutathione peroxidase enzyme, a fundamental endogen antioxidant to fight the free radicals that form in the body, it can also substitute vitamin E; acts on the health of cell membranes and the pancreas. Together with Zinc, it helps decrease the absorption of heavy metals like Mercury, Cadmium and Arsenic. It is found in wholemeal cereals, soya, fish, meat, fruit and vegetables.

SILICON - stimulates the metabolism of Calcium, collagen and helps improve cardiovascular health; stimulates the immune system and has an anti-inflammatory action; contrasts the action of toxic minerals like Aluminium; reduces the sensation of tiredness and fatigue. It is found in fruit, vegetables and wholemeal cereals.

SODIUM - together with Potassium, it regulates cell excitability and base-acid balance. It is mainly found in the extracellular fluids, and high concentrations lead to fluid retention and cellulite; it works in several other body metabolic processes. It is found in all “salty” foods.

STRONTIUM - chemically similar to Calcium, it strengthens bones. It is found in wholemeal cereals, fruit and vegetables.

VANADIUM - involved in several chemical reactions; it seems to inhibit the formation of cholesterol; aids bone and teeth mineralisation; it is a co-factor in the metabolism of fats, proteins and sugars, aiding protein synthesis

to the detriment of lipogenesis. It is found in vegetable oils, wholemeal cereals, seafood, parsley, mushrooms, fruit and vegetables.

ZINC - indispensable for growth, for tissue repair, good immune functions; works in the digestion of carbohydrates and phosphorous metabolism; activates the enzymes needed to absorb vitamins and is useful in healing processes; involved in protein synthesis of numerous proteins; plays an important role in the health of skin, hair and nails. Good zinc concentrations are found in oysters, wholemeal cereals, meat, mushrooms, cacao, walnuts and egg yolk. Its absorption is reduced by the presence of phytates and fibres, found in wholemeal cereals, casein, found in milk, and high concentrations of Calcium.

SULPHUR - has a structural function, found in many amino acids (sulphate products), vitamins, hormones and enzymes. Essential for the correct functions of the antioxidant system, insulin and many vitamins. It is found above all in eggs, meat, fish, cheese, garlic, onions and cabbage.

TOXIC MINERALS

Toxic minerals are polluting substances that enter our body in an insidious way. They block the correct functions of numerous enzymatic complexes. Certain toxic metals (Cadmium, Aluminium, Mercury, Lead, Arsenic, etc.) are elements able to alter the body's normal physiological functions. For example, in children, toxic metals can help develop learning disorders. Lead causes serous neurological disorders, headache and hyperactivity. Cadmium can be a joint cause of arterial hypertension.
Lead, Cadmium and Mercury cause joint pain, muscular, kidney and dermatological problems. Their presence or an unbalanced content of nutrient minerals and toxic minerals, is aggravated by environmental pollution and constant contact, through the air, water, food or the workplace, with heavy metals that can cause psychic problems (anxiety, depression, panic attacks), neurobehavioral problems in growing children (dyslexia, attention deficit), immune diseases and chronic pathologies.

ALUMINIUM - A widespread mineral, contamination is mainly from cooking salt (if aluminium silicate is added as an anti-agglomerant), white flour (it is contained in the bleach), aluminium foil and containers (cans), dental amalgams, cooking utensils, deodorants, melted cheese. It binds DNA and deposits in the brain. It can cause constipation, dry skin, headache, cephalea, memory disorders.

ANTIMONY - chemically very similar to arsenic. Food, smoke, gunpowder are normal contamination carriers of antimony. Another possible source are fireproof fabrics in contact with the skin. Some of the symptoms of intoxication are fatigue, chronic tiredness, weak muscles.

ARSENIC - a common environmental pollutant, produced when processing copper, lead and silver, and burning coal. Contamination can also be through food: traces of arsenic can be found in fish and molluscs, poultry (fed with industrial feed), vegetables treated with parasiticides. In chronic intoxication the symptoms are very vague and could be attributed to other causes: irritability and depression, dermatitis and other skin problems, liver and kidney disorders. An intake of Selenium can contrast the toxicity of Arsenic.

BERYLLIUM - can cause dysfunctions in the immune system, with hypersensitive reactions. Possible sources of beryllium are: electronic components, metal alloys used in aeronautical and aerospace applications, treated lenses, and certain phosphors used in fluorescent lamps. Difficult to trace in hair. Antagonists of Beryllium are Calcium and Vitamin D.

CADMIUM - used to produce colours (yellow and red), in many alloys and in battery production. Nearly all foods contain varying amounts of cadmium due to environmental pollution, but especially fish and molluscs, and even in refined and industrial products there is a constant and increasing content to the detriment of Zinc, Chrome, Manganese, Iron, Copper. It is found in cigarettes and exhaust gas, in plastic combustion, in water and phosphate fertilisers. Absorption is higher if there is a deficiency of Zinc, it can block and reduce the absorption of Zinc and Copper. A deficiency of Iron can also help increase the concentration of Cadmium. An excess can cause cephalea, loss of appetite, hair loss, liver and gastrointestinal problems, anaemia, immune and kidney deficits.

MERCURY - Mercury enters the human body because of soil and water pollution. Frequent sources are dental amalgams, battery disposal residues, fish and industrial residues. Mercury is particularly damaging at adipose and cerebral levels, and can cause tremors, psychic disorders, convulsion, irritability, depression and insomnia. The first signs are: inflamed gums, skin irritations, loss of weight and appetite, and anaemia. Adequate amounts of Selenium in the diet can protect against the toxic effects of mercury.

LEAD - Sources of pollution are machine exhausts that use lead fuels, cigarettes, vegetables grown in areas with dense road traffic around. Tap water can contain traces. Adequate amounts of Calcium, Zinc and Iron in the diet seem to limit the risk of absorbing Lead. In adults it can cause symptoms like: constipation, abdominal colic and anaemia.

PLATINUM - is rather a rare element. In recent years, a slight increase of platinum has been recorded in the environment, due to its use in car catalytic converters. Symptoms of platinum contamination are: dermatitis, mucous irritation, dyspnoea and asthma, increase in chronic allergic reactions, nephrosis and supressed immune system.

TIN - at very low concentrations it plays a physiological role: a tin deficiency causes alterations in growth and in the concentration of other minerals in the body. However, at high concentrations it becomes toxic and can interfere with the metabolism of Zinc, Copper and Calcium. The main food source of tin is in canned foods.

URANIUM - more widespread in the soil than Mercury, Silver and Cadmium. Low concentrations could be found in the drinking water aquifers. The most common use is for nuclear fuel, but uranium can also be found in ceramics, coloured glasses, especially old and antique ones, and in yellow glass items.

OTHER MINERALS

BARIUM - high levels of barium cause myocardia and muscular hypertension, tingling in the hands and feet, and loss of tendon reflexes. It can interfere with the metabolism of Calcium and Potassium retention. Foods rich in Barium are milk, flour, potatoes and walnuts.

GERMANIUM - has chemical properties similar to Silicon. It is an important semiconductor, and certain dental alloys contain Germanium. Germanium has bactericide, antiviral and immune stimulating activities, and therefore small concentrations can be useful to fight infection, and it also seems to have pain-killing properties. Foods that contain low concentrations of germanium are meat, fish, vegetables, aloe and ginseng.

PALLADIUM - can cause toxic reactions, and is not normally present in the body. Among the symptoms of intoxication from Palladium is irritated mucous.

RHODIUM - can cause toxic reactions, and is not normally present in the body. Among the symptoms of intoxication from Rhodium are skin blemishes.

TITANIUM - has chemical properties similar to Zircon and Vanadium. Foods with low concentrations of titanium are fruit and vegetables. In the environment, it is found in iron mines and burnt wood ashes. High levels of titanium in hair can be due to treatments with dyes or ‘highlights’. Many shampoos also contain titanium dioxide, which can remain firmly attached to the hair and not completely removed by the washes before the spectrophotometric analysis.

TUNGSTEN - can cause toxic reactions, and is not normally present in the body. Among the symptoms of intoxication from Tungsten are damage to the mucous and membranes, irritated eyes.

ZIRCON - used to construct and line nuclear reactors and as a component in alloys. It is not normally present in the body.

RATIOS BETWEEN NUTRIENT MINERALS

It is not sufficient to assess the absolute quantity of a given mineral, but its quantity with respect to other minerals it interacts with must also be assessed. Imbalances between minerals have no diagnostic significance for certain disorders, but if they persist they can constitute a preparatory factor. Alongside the most important ratios the others are also given, consequently a clinical interpretation is required from the patient’s doctor or the specialist.

Calcium/Phosphorous - The bioavailability of calcium can be affected by the balance with Magnesium and Phosphorous, other fundamental components for the bones. A deficiency of these minerals can lead to the Calcium fixing outside the bones, in tissues like hair, blood vessels, gall bladder, kidneys, etc. An increase in the ratio between Calcium and Phosphorous can indicate a dominance of the parasympathetic autonomous nervous

system, due to greater stimulus of the posterior pituitary. The nervous parasympathetic and endocrinous system is defined ‘sedative’, and leads to a reduction in metabolic activity, contributing to the classic ‘pear-shaped’ body. On the other hand, a decreased ratio shows higher anterior pituitary activity, which leads to increased metabolic activity, contributing to the ‘apple-shaped’-body.

Calcium/Potassium - as Calcium is controlled by the parasympathetic system, its concentration also affects thyroid activity. An increased ratio can indicate interrupted thyroid activity, and, vice versa a decreased ratio. The ratio between Calcium and Potassium can also be influenced by the quantities of Zinc, Iron, Copper, Selenium, Lithium, Cobalt, Molybdenum.

Calcium/Magnesium - Magnesium is strictly related to the quantity of Calcium present, inversely proportional to the levels of Sodium and Phosphorous. In conditions of stress its capacity for absorption is decreased. An increase in the ratio between the two minerals can indicate a dominance of the parathyroid, and an increase in insulin levels. Vice versa, a decreased ratio reflects a potential decrease in insulin levels and increase in the production of hormones by the cortical adrenal glands.

Zinc/Copper - Zinc is one of the first minerals to be eliminated in case of stress. The ratio between the two is influenced by the hormone balances between oestrogen, progestin and testosterone. Zinc is necessary to produce progesterone and testosterone, while Copper is influenced by the oestrogen concentration. This ratio is important as well for the body’s antioxidant capacity, as both the elements influence the superoxide dismutase activity. The ratio also changes during pregnancy, breast-feeding, growth, illness and infection from microorganisms.

Sodium/Potassium - the ratio between the two minerals reflects the adrenal cortical activity and the kidney function control. Both elements are affected by stress and inflammation. When the levels of Sodium increase, it could indicate inflammation in progress, together with stress. In these cases, the production of aldosterone increases which, in turn, increases the retention of Sodium, triggering a vicious cycle. A ratio in favour of Potassium can indicate an anti-inflammatory reaction and release of glucocorticoids and cortisol, which increase potassium retention in the kidneys. A chronic increase in Potassium levels can cause protein catabolism, and a loss of tone and health in the organs. The presence of Lead and Cadmium influence this ratio, as both affect kidney function. Other minerals that affect the ratio are: Calcium, Phosphorous, Copper, Iron, Manganese, Magnesium, Lithium.

Sodium/Magnesium - an increased ratio between these two can indicate increased adrenal cortical activity. A deficiency of Magnesium leads to an increased response to stress. If there is an imbalance between the two minerals, there can be a build-up of nitrogen toxins and increased oxidative stress.

Iron/Copper - both involved in cell respiration and electron transport. An increased ratio leads to an increased production of free radicals, oxidation of the circulating lipids and the cell membranes, resulting in damage to the cells and tissues. Lower Iron or Copper circulating lead to reduced capacity of the body to synthesise haemoglobin. An altered ratio can also lead to an increased risk of infection and inflammation.

Copper/Molybdenum - antagonist minerals. An imbalance between these two can lead to a reduced detoxication capacity of the body.

Magnesium/Boron - Boron can interfere with the functions of Magnesium, especially if the ratio between Calcium and Magnesium is high, or when the quantity of Magnesium in the tissues is reduced.

RATIO BETWEEN NUTRIENT AND TOXIC MINERALS

There is no range of standard references that have a direct correlation between the toxicity of toxic minerals. There are the acceptance levels, that it is better not to fall below, to guarantee wellbeing and health for our body. The higher the ratio between nutrient and toxic minerals, the better for our health, but there is no clinical significance with respect to a lower ratio than those considered acceptable.

Aluminium: High levels in hair are always associated with disorders in the Calcium-Magnesium metabolism.

Barium: High levels in hair are always associated with a build-up of Calcium and altered parathyroid function.

Nickel: is essential to absorb Iron and Cobalt.

REPEATING THE TEST

It is advisable to repeat the test after 6 months, after the correct treatment and after correcting the diet. In the case of therapeutic monitoring or pathologies, it is advisable to repeat the test according to the advice from the doctor who prescribes it. If there are problems in interpreting the results, or if there are any pathologies in progress, a specialist's opinion is recommended, who is able to provide the specific therapeutic assistance.

IMPORTANT

The test results must always be interpreted and integrated by the doctor into each patient's case. This test cannot be reproduced partially. The laboratory results, graphs and explanations contained in this leaflet must not be taken as a medical diagnosis. The results reflect just the hair composition. Therefore they are exclusively an extra instrument for the doctor, who is able to use them and integrate them with the other factors that emerge during the check up or other diagnostic tests, to then formulate the correct treatment and diagnosis of the patient's health.

GUIDE TO READING THE TEST

Key :

- GREEN TRAFFIC LIGHT: all the marker values are in the norm
- YELLOW TRAFFIC LIGHT: one or more values, less than half the tests conducted for that marker, are out of range.
- RED TRAFFIC LIGHT: more than half the values for that marker are out of range
- NORMAL RANGE: shown by the blue bar

TEST RESULTS:

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MINERAL EVOLUTION
(Hair tissue mineral assessment)

Dott.ssa Ausilia Rausa

Rossi Mario

Cod. ID: 123456
01/01/2014

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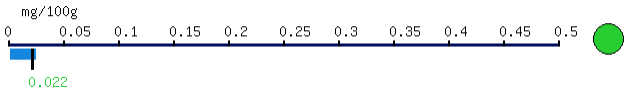
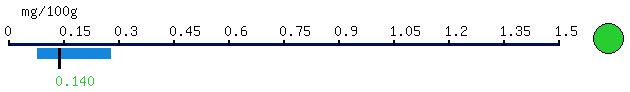
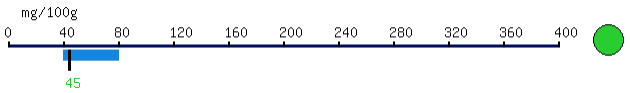
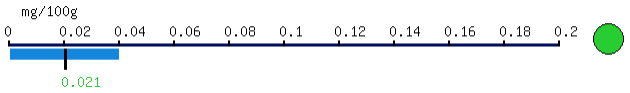
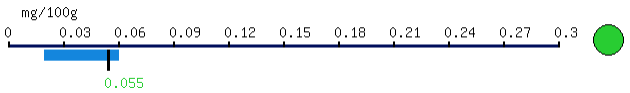
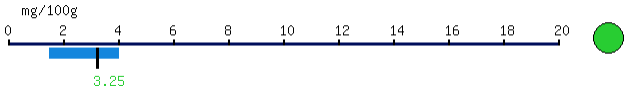
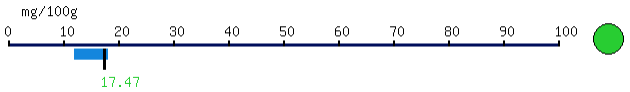
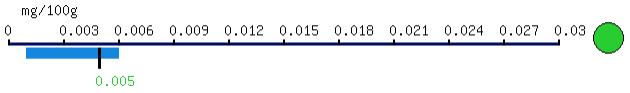
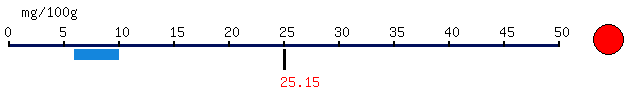
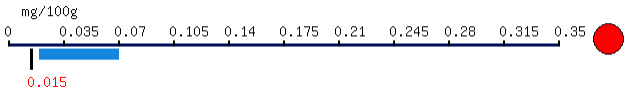
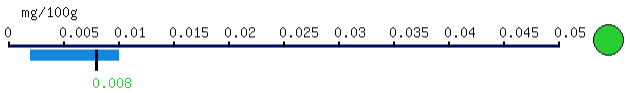
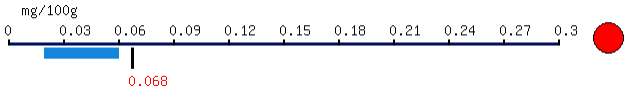
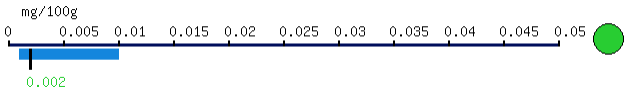
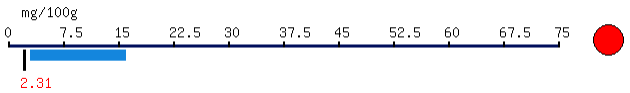
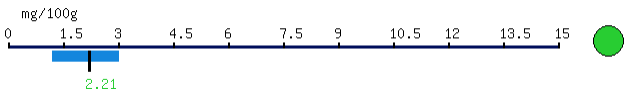
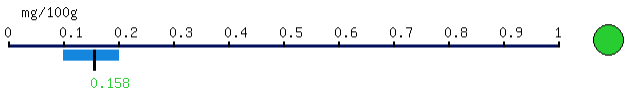
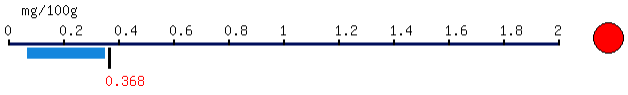
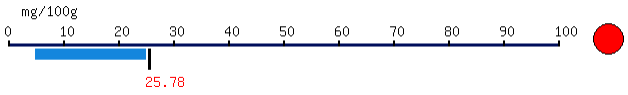
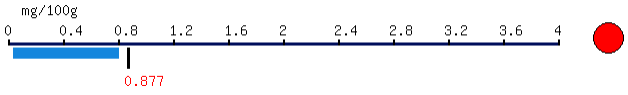
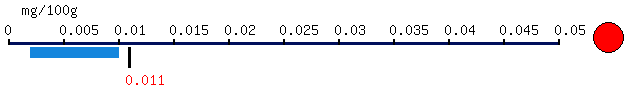
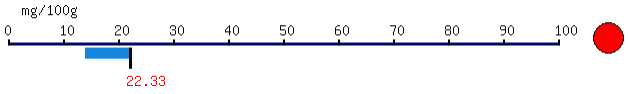
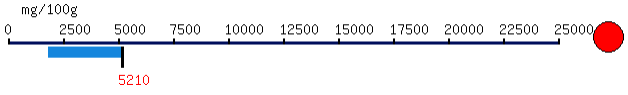
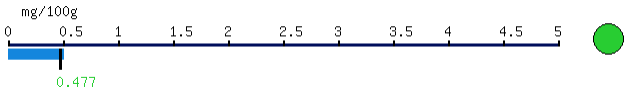
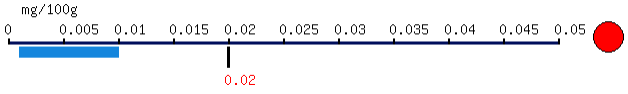
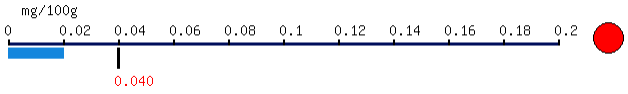
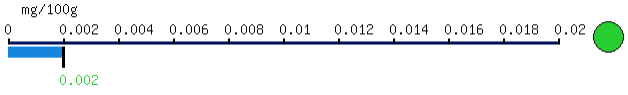
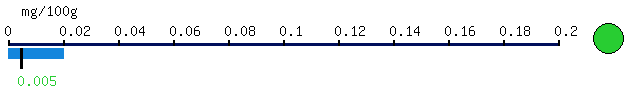
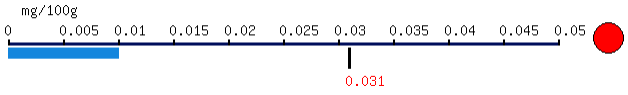
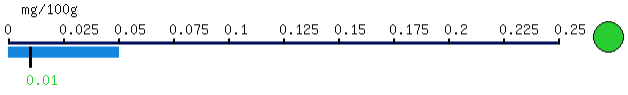
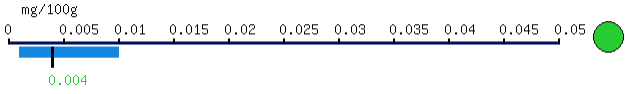
Results

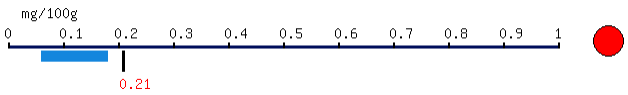
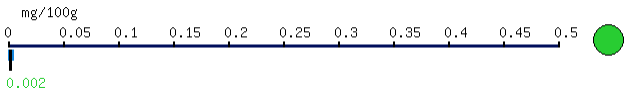
Nutrient minerals

Mineral	Abb.	Normal value	Graph
Silver	Ag	0.022 (0.0020 - 0.0250)	
Boron	B	0.140 (0.080 - 0.280)	
Calcium	Ca	45 (40.00 - 80.00)	
Cobalt	Cb	0.021 (0.001 - 0.040)	
Chrome	Cr	0.055 (0.020 - 0.060)	
Iron	Fe	3.25 (1.50 - 4.00)	
Phosphorous	P	17.47 (12.00 - 18.00)	
Lithium	Li	0.005 (0.001 - 0.006)	
Magnesium	Mg	25.15 (6.00 - 10.00)	
Manganese	Mn	0.015 (0.020 - 0.070)	
Molybdenum	Mo	0.008 (0.002 - 0.010)	
Nickel	Ni	0.068 (0.020 - 0.060)	
Gold	Au	0.002 (0.001 - 0.010)	
Potassium	K	2.31 (3.00 - 16.00)	

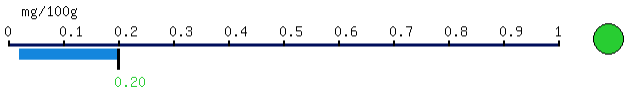
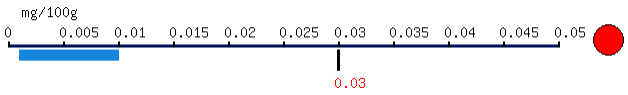
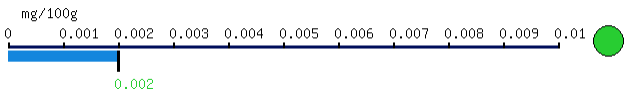
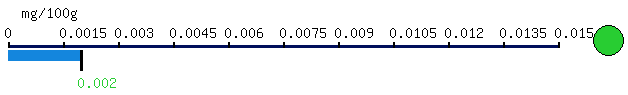
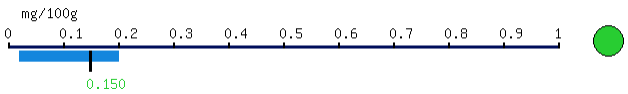
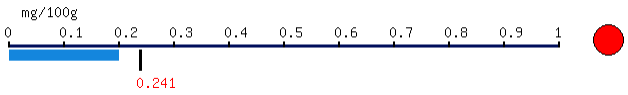
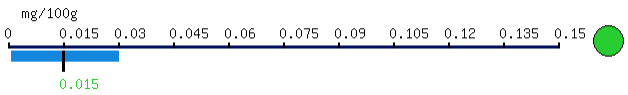
Copper	Cu	2.21 (1.20 - 3.00)	
Selenium	Se	0.158 (0.100 - 0.200)	
Silicon	Si	0.368 (0.070 - 0.350)	
Sodium	Na	25.78 (5.00 - 25.00)	
Strontium	Sr	0.877 (0.040 - 0.800)	
Vanadium	V	0.011 (0.002 - 0.010)	
Zinc	Zn	22.33 (14.00 - 22.00)	
Sulphur	S	5210 (1850 - 5150)	

Toxic minerals

Mineral	Abb.	Normal value	Graph
Aluminium	Al	0.477 (0 - 0.5000)	
Antimony	Sb	0.02 (0.001 - 0.010)	
Arsenic	As	0.040 (0 - 0.0200)	
Beryllium	Be	0.002 (0 - 0.002)	
Cadmium	Cd	0.005 (0 - 0.0200)	
Mercury	Hg	0.031 (0 - 0.0100)	
Lead	Pb	0.01 (0 - 0.0500)	
Platinum	Pt	0.004 (0.001 - 0.010)	

Tin	Sn	0.21 (0.060 - 0.180)	
Uranium	U	0.002 (0 - 0.0050)	

Other minerals

Mineral	Abb.	Normal value	Graph
Barium	Ba	0.20 (0.020 - 0.200)	
Germanium	Ge	0.03 (0.001 - 0.010)	
Palladium	Pd	0.002 (0 - 0.002)	
Rhodium	Rh	0.002 (0 - 0.002)	
Titanium	Ti	0.150 (0.020 - 0.200)	
Tungsten	W	0.241 (0.002 - 0.200)	
Zircon	Zr	0.015 (0.001 - 0.030)	

Ratios between Nutrient Minerals

Mineral ratio	Abb.	Recorded level
Calcium : Magnesium	Ca/Mg	1.79 (3.00-11.00)
Calcium : Potassium	Ca/K	19.48 (2.20-6.20)
Calcium : Phosphorous	Ca/P	2.58 (1.60-3.60)
Calcium : Sodium	Ca/Na	1.75 (0.90-2.65)
Calcium : Zinc	Ca/Zn	2.02 (reference level 2.10)
Chrome : Vanadium	Cr/V	5.00 (reference level 13.30)
Copper : Molybdenum	Cu/Mo	276.25 (> 625.00)
Iron : Copper	Fe/Cu	1.47 (0.45-1.35)

Magnesium : Boron	Mg/B	179.64 (> 40.00)
Sodium : Potassium	Na/K	11.16 (1.40-3.40)
Sodium : Magnesium	Na/Mg	1.03 (2.00-6.00)
Zinc : Copper	Zn/Cu	10.10 (4.00-12.00)
Zinc : Iron	Zn/Fe	6.87 (reference level 9.10)

Ratios between Nutrient Minerals and Toxic Minerals

Mineral ratio	Abb.	Recorded level
Calcium : Cadmium	Ca/Cd	9000.00 (> 2130)
Copper : Cadmium	Cu/Cd	442.00 (> 126.78)
Iron : Cadmium	Fe/Cd	650.00 (> 111.57)
Magnesium : Cadmium	Mg/Cd	5030.00 (> 304.28)
Manganese : Cadmium	Mn/Cd	3.00 (> 7.53)
Sodium : Cadmium	Na/Cd	5156.00 (> 1217.14)
Zinc : Cadmium	Zn/Cd	4466.00 (> 1014.28)
Calcium : Lead	Ca/Pb	4500.00 (> 84.00)
Copper : Lead	Cu/Pb	221.00 (> 6.62)
Magnesium : Lead	Mg/Pb	2515.00 (> 16.00)
Manganese : Lead	Mn/Pb	1.50 (> 0.40)
Iron : Lead	Fe/Pb	325.00 (> 6.30)
Zinc : Lead	Zn/Pb	2233.00 (> 53.31)
Calcium : Beryllium	Ca/Be	22500.00
Selenium : Cadmium	Se/Cd	31.60
Selenium : Mercury	Se/Hg	5.10