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JOHN'S CORNER:

MINERALS - The Elements and What They Do (Part 15)

by John Ferguson

23) Vanadium (V) - Vanadium is a silvery grey metal and occurs naturally in over 70 minerals and is essential for all living organisms. Vanadium is found in igneous rocks at 135 ppm, shale at 130 ppm, both sandstone and limestone at 20 ppm, fresh and seawater at 0.001 ppm and soils at 100 ppm. It is found in land and marine plants at 1.6 ppm and 2 ppm respectively.

This metal is used in industry as a few percent vanadium carbide makes steel harder and stronger than even titanium steel. The green color in many emeralds comes from vanadium impurities in the gemstone.

Vanadium was found to be an essential trace element in 1971, however it is poorly absorbed by humans when in its metallic state with only 0.1-1% of what is there being absorbed. As in many nutrients if the mineral form of vanadium is chelated then absorbability can reach 40%, and if in is in plant derived colloids up to 98% absorption can be achieved. As in most nutrients, we must get them in a plant-derived form to ensure we have sufficient amounts for good health.

Vanadium stimulates glucose oxidation and transport in fat cells, along with glycogen synthesis in the liver and muscles. Vanadium enhances the stimulating effect of insulin on DNA synthesis. It appears to function like insulin by alternating cell membrane function, hence vanadium has a very beneficial effect for humans with glucose tolerance problems. Vanadium supplementation can have a major effect in reducing or eliminating most cases of adult onset diabetes.

Vanadium inhibits cholesterol synthesis in animals and humans and vanadium has known anti-carcinogenic properties. A few vanadium deficiency diseases are slow growth, increased infant



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mortality, infertility, elevated cholesterol, elevated triglycerides, hypoglycemia, diabetes, cardiovascular disease, and obesity.

It is an essential component of several human enzymes and vanadium supplements has shown a growth promoting effect on chickens.

Often our cravings for sweets and chocolate are symptoms of a vanadium and chromium (Cr) deficiency. Chocolate often has higher levels of these nutrients.

Gardening and Landscaping Problems Associated with Vanadium (V)

Many plants absorb vanadium easily from the soil (especially if it is acidic) if it is present in the soil. Vanadium is absorbed and stored in soils by humus (especially in alkaline soils) and by clay minerals to some degree.

Observations have found that the ions of vanadium, vanadate (VO_4^{3-}) and vanadyl (VO_2^+) in various complexes have both stimulating and inhibiting impacts on several plant enzymes. Vanadium may substitute for molybdenum (Mo) in nitrogen fixation by some microorganisms. Vanadium also accumulates in the nodules on certain legumes.

Other plant enzymes use vanadium to convert atmospheric nitrogen into ammonia to make amino acids. Vanadium is required by some algal and bacteria species for them to grow.

Spinach (500-800 ppm) and lettuce (280-710 ppm) tend to accumulate more vanadium than other plants.

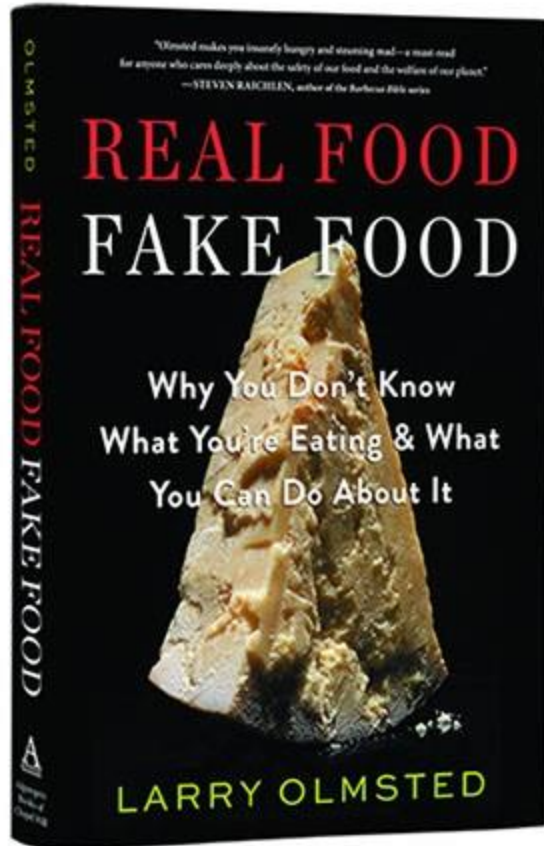
One study found that vanadium levels over 3,000 ppm (very rare), might have some inhibitory effects on some plants.

Sources: granite sand, basalt sand

"REAL FOOD FAKE FOOD- Why You Don't Know What You are Eating & What You Can Do About It", Larry Olmstead, Algonquin Books of Chapel Hill, 2016, ISBN: 978-1-61620-421-1

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The government agency called the FDA is often referred to as Failure Deception and Abuse, this book is another example of why. Growing fruits and vegetables in our back yards has exploded in recent years and this book is another example of why we need to grow our own food or shop at local farmers markets. Several people have written on the essence of this book so here is what they have to say.

You've seen the headlines: Parmesan cheese made from wood pulp. Lobster rolls containing no lobster at all. Extra-virgin olive oil that isn't. Fake foods are in our supermarkets, our restaurants, and our kitchen cabinets. Award-winning food journalist and travel writer Larry Olmsted exposes this pervasive and dangerous fraud perpetrated on unsuspecting Americans. In Real Food / Fake Food, award-winning journalist Larry Olmsted convinces us why real food matters and empowers consumers to make smarter choices

"Olmsted makes you insanely hungry and steaming mad--a must-read for anyone who cares deeply about the safety of our food and the welfare of our planet." -Steven Raichlen, author of the Barbecue! Bible series

"The world is full of delicious, lovingly crafted foods that embody the terrain, weather, and culture of their origins. Unfortunately, it's also full of brazen impostors. In this entertaining and important book, Olmsted helps us fall in love with the real stuff and steer clear of the fraudsters." -Kirk Kardashian, author of Milk Money: Cash, Cows, and the Death of the American Dairy Farm



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Olmsted brings readers into the unregulated food industry, revealing the shocking deception that extends from high-end foods like olive oil, wine, and Kobe beef to everyday staples such as coffee, honey, juice, and cheese. It's a massive bait and switch in which counterfeiting is rampant and in which the consumer ultimately pays the price.

But Olmsted does more than show us what foods to avoid. A bona fide gourmand, he travels to the sources of the real stuff to help us recognize what to look for, eat, and savor: genuine Parmigiano-Reggiano from Italy, fresh-caught grouper from Florida, authentic port from Portugal. Real foods that are grown, raised, produced, and prepared with care by masters of their craft. Part cautionary tale, part culinary crusade, *Real Food / Fake Food* is addictively readable, mouthwateringly enjoyable, and utterly relevant.