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NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

By John Ferguson

A study published in the journal *Plant Diseases* (2023), researchers discovered that licorice leaf extract is a potent bactericide and fungicide. It does not have the toxic side effects of conventional pesticides. We are seeing more and more natural biocontrol products being released every year.

The March issue of *Greenhouse Magazine* had an article on a new bio fungicide from Obtego Fungicide and Plant Symbiont. It is a collection of naturally occurring fungi, *Trichoderma asperellum* strain ICC012 and *Trichoderma gamsii*.

They work over a wide range of temperature, pH, moisture, soil media, etc. They are especially effective against soil borne pathogens that attack root systems. They have multiple modes of action and are effective on *Phytophthora spp.*, *Rhizoctonia spp.*, *Rosellinia spp.*, *Sclerotinia spp.*, *Sclerotium rolfsii*, *Theilaviopsis basicola*, and *Verticillium spp.*

These strains of good fungi are also a curative as well as a preventative. They work by parasitizing the pathogenic fungi or bacteria (essentially eating them). These modern biological control products only target the pathogen versus the old toxic chemical fungicides that kill everything good and bad.

As the Bible states "Study Nature and let it teach you."

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For those whom enjoy the culinary aspects of fungi and the health benefits they provide, there was an article in the April/May 2023 issue of Mother Earth News titled “Dead Tree Delicacies”. It was authored by Bruce and Elaine Ingram whom are the authors of the book Living the Locavore Lifestyle.

We are continuing to learn almost daily how important fungi are to the health of our soil and plants to human health. A lot of doctors are now recommending either eating more fungi (mushrooms) or take supplements as they are a powerful way to boost one’s immune system.

The article has lots of photos and includes several recipes on how to find and cook these delicious and nutritious foods of nature.

A question I get asked a lot is about yellowing of one’s plants, what is often referred to as chlorosis. There are three primary causes of chlorosis directly related to nutrients.

The first is nitrogen (N) deficiency which develops on the oldest leaves. If there is insufficient available nitrogen in the soil then plants will move nitrogen atoms from older leaves to new ones. The old whole leaf appears yellowish.

Next is magnesium (Mg) deficiency which also occurs on older leaves. The symptoms are a little different than N deficiency. In this case the veins of the leaves stay green while the surrounding areas become yellowish.

Third is a shortage of any of several minor nutrients like iron (Fe), zinc (Zn), copper (Cu), and manganese (Mn). These deficiencies show up as yellowing on the leaf’s veins on new growth.

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Magnesium (Mg) shortage is often caused by too much calcium (Ca), either from excess fertilizer or calcium carbonates in the water supply. Calcium often builds up in the soil if plants are over watered. Excess calcium prevents plants from absorbing magnesium.

Another common cause of yellowing is applying gypsum (calcium sulfate) to break up clay or loosen soils. Gypsum easily dissolves in water providing too much calcium. One should only apply gypsum if a test report shows a deficiency of calcium. Over the years I have seen a lot of folks ruin their soils by applying gypsum when it was not needed.

For the minor nutrients a lack of quality organic matter and microbes will limit absorption of these nutrients. For example, with the old fashioned toxic chemical methods, alkaline soil (high pH) will limit absorption of these elements and acidification is required. In other words, treat the symptom and not the cause.

To correct yellowing in the long term, there are a few basic steps that one can take. Use a good quality leaf mold compost in the soil and around your plants to provide the required microbes and organic matter (a probiotic for your soil), use re-mineralizer to ensure trace elements and use a good organic fertilizer like Microlife™.

For faster results one can spray the plants with a solution of Super Seaweed (another Microlife™ product). The plants can absorb the required nutrients through their leaves and provide temporary relief. For long term health one needs to correct the soil problems.

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