



Branching Out

Summer 2019

Defence Defence Defence

Because plants do not move, it is easy to think of them as passive life forms, but, in reality, they are anything but. While humans have a separate immune system, a plant's immunity is in every cell. And, armed with a variety of defense mechanisms, plants can mount an impressive arsenal to avoid predatory attacks.

Poison Ivy

Huron Woods residents are very familiar with the protective methods used by Poison Ivy. Urushiol, an oily irritant, causes extreme dermatitis, but only in humans. Secondary contaminations can occur when urushiol is deposited on bike tires, sneaker soles, gardening gloves etc. and oil can remain active for 5-7 years, even in the winter. The plant also has the ability to alter its appearance to blend in with surrounding plants, making identification tricky. Deer eat the leaves and the nutritious nuts, formed in the fall by this member of the cashew family, feed small mammals bulking up for the winter to come.



Washing with Sunlight soap soon after exposure is recommended. Rashes are effectively dealt with by application of milkweed sap. Poison ivy is indigenous to this area and plays a valuable role in the food web, a fact that can be difficult to remember when a rash develops.

Chemical Signalling

The release of volatile compounds to warn neighbours of attack is commonly used in a number of plant species. Tomatoes, for example give off chemicals not only to repel insect attacks but also to warn neighbouring tomato plants to arm themselves as well.

Crypsis

The mimosa plant is sensitive to touch. Its reaction is to send an electrical signal to its roots where charged particles cause water to be removed from the stem and leaves, causing leaves to suddenly curl, startling insect attackers into leaving the plant alone. Venus fly trap uses similar technique.

Raphides

Some plants, like pineapple, kiwi, rhubarb and spinach, give off needle shaped crystals which cause tiny wounds in the mouths of predators, making them open to microbial infection. Do you react to fresh pineapple? This is why.

Thorns, Spines, Barbs

The prickly rasps of the wild raspberry plant, abundant in Huron Woods, is a successful deterrent to any insect thinking of a quick meal and a cause of discomfort to humans as well. Some plants have barbs with hooks to impale invading insects.

Poisons Milkweed sap effectively deters damage from most insects except the Monarch larva which consumes it for its own protection from predation, without itself being poisoned.

Histamines Stinging nettles inject histamines into invaders causing allergic reactions.

Mutualism

Ants are known to protect certain plants from invaders. The ants also appear to have an anti-microbial coating on their bodies. Peonies are covered in ants attracted to the sweet nectar coating the blooms. In turn, the ants protect the plant from insect and microbial invasion.



Monarch Caterpillar on Milkweed blossom

Protective Proteins

Lectins are plant proteins, ubiquitous in nature, that have protective functions against a range of pests. Lectins survive digestive systems of herbivores, remain toxic and interfere with digestion and nutrient absorption. They cause damage to key digestive tissues, affecting hormone levels and immune systems in insects. Lectins are involved in symbiotic relationships between plants and helpful microbes and fungi. Our healthy native trees of Huron Woods absorb nutrients with the help of these microbes and communicate with other trees via the fungi, all enabled by lectins. Keeping native ground covers helps our trees absorb nutrients and remain healthy.

Suberization

A waxy coating on leaves thickens after an insect or microbial attack. Surrounding cells self-destruct to quarantine the area and protect it from further attack.

Lignin

The bark of trees contains lignin which offers strong physical and chemical protection from microbial and insect invasion. Lignin is the support material for plants and has multiple commercial uses. We are likely wearing or consuming lignin on a daily basis. It is used for food (thickeners in ice cream), cosmetics, gels and emulsifiers and for its anti-oxidant, anti-bacterial and anti-viral properties.

Drugs, Medicines and Seasonings

Willow bark is the original source of aspirin. Cinnamon is the inner bark of cassia trees. Turmeric, cumin and capsaicin (cayenne, jalapinos, chili peppers, habineros) are supposed to have multiple health benefits in addition to being used to deter bacterial growth. These spices were used by Egyptians in 1555 BC and have become an integral part of the cuisine in warmer climates. They deter food spoilage where refrigeration is unavailable, but they all originated to fulfill the needs for plant protection.

Sources: Britannica, Botanical Barbarity, American Journal of Clinical Nutrition, Ted-ed, US National Library of Medicine, University of Missouri Plant Management, International Lignin Institute, Arthritis Foundation, Cancer Research

Guest Speaker Event Saturday, July 6th, 10 a.m. At the Huron Woods Clubhouse

Back by popular demand, Brian Salt of Salthaven Animal Rescue and his animal ambassadors

We will pass the hat for Canadian Tire \$ and unused gift cards, loose change etc. for this charity

Missing past issues of Branching Out? Go to www.habitatstewardship.ca Enquiries or suggestions for future topics? Please contact Sharon Callan sharpalgb@gmail.com

New Service for HW Owners James Corcoran, registered forester, will identify the significant trees on your lot. Contact James at atreegrower@gmail.com for more information