

Seabuckthorn and Inflammation

In elementary school, we learned that pathogens – bacteria, toxins and viruses - were the invading enemy and our bodies mobilized an army of antibodies to do battle with them. We now know that this army, deployed for millions of years by the immune systems of successful species, far from being a homogenous infantry, is a broad and deep spectrum of specialized fighters managed by the mast cells. Furthermore, we also know that often, our own bodies are the victims of overzealousness, collateral damage, or even an unwelcome occupation or siege by this same dedicated army.

Why our immune system turns on us, in such ways as auto-immune disorders and chronic inflammation, is one of the hottest topics in medicine today, as is how to deliver the 'stand down' message to our internal domestic forces. The actions and interactions of the mast cells with Seabuckthorn (*Hippophae rhamnoides* L) has much to tell us in this regard.

Seabuckthorn the Synergistic Superfruit

While there is no doubt that seabuckthorn extracts, in particular the oils have a noticeable and positive impact on many skin conditions, *why* this is so has not been so obvious. What is known however is that Seabuckthorn is one of the most powerful natural anti-oxidant and anti-inflammatory herbals identified. Its nutrient density, anti-oxidant strength and potential for disease impact are second to none.

(Superfruits Take Center Stage, NPI Daily, 2007/02/26.)

Coincident with seabuckthorn's surrender of its secrets, the skin itself has become the subject of increasing and highly specialized scrutiny within a variety of scientific disciplines. Of particular interest is the skin's significant role as a first stage defense against foreign invaders. It had not been clear until recently how many specialized antibodies

were being deployed by the body to fight skin-deep invaders, and the impact of these cells on chronic inflammation.

Mast Cells – Inflammatory Mediators

Of particular note in determining seabuckthorn's success is the increasing understanding of the role of the *mast cells* in the inflammatory response. Mast cells are formed in the bone marrow and then migrate to the tissues of the body including the cardiovascular, urogenital and gastrointestinal systems, the skin, connective tissue and all other mucous membranes. When primed with immunoglobulin antibodies (IgE), these mast cells 'degranulate', releasing chemicals, the most powerful of which is histamine. Histamine acting in concert with polypeptide C5a and a vasodilator prostaglandin increase microvascular permeability allowing fluid to migrate into the surrounding tissue. This in turn causes the tissue to heat up, swell and redden, attracting other inflammatory agents such as cytokines, part of the immune system's multi-faceted inflammatory arsenal. A body of recent research suggests that mast cells may be involved much more broadly in the regulation of skin physiology and the development of skin diseases of inflammatory or malignant origin, and "mast cell stabilization" is a hot topic for researchers right now.

In examining the potential connection between mast cell mediators and seabuckthorn's anti-inflammatory activity, what is most striking is the fact that they are both most active in the same physiological domains. The skin, the various systems of the mucous membranes, connective tissue and the cardiovascular system are areas of significant mast cell inflammatory activity. Reciprocally, they also encompass areas in which seabuckthorn has been very effective. Coincidence? Perhaps, but not likely. With its impressive array and depth of antioxidants and anti-inflammatories it is very probable that seabuckthorn is a significant, completely natural and totally benign mast cell stabilizer. Through discreet and synergistic bio-activity it inhibits mast cell histamine release and the subsequent amplification of the inflammatory response by other inflammatory mediators such as

cytokines, prostaglandins and T cells. Over time, this intervention could be expected to reduce mast cell over-sensitivity which is reflected in the normalization of the body's internal environment and the restoration of healthy skin and membranes.

Some of the applications of seabuckthorn are as a vascular and mucous membrane conditioner, healing internal and external ulcers, lowering cholesterol, reducing the effects of fibromyalgia and arthritis, restoring skin's freshness and suppleness and healing burnt or damaged tissue. Seabuckthorn has also demonstrated significant improvement in youth and adult acne, rosacea, eczema, dermatitis and psoriasis.

How does Seabuckthorn Work?

There is still much to learn, but here are some of the ways in which seabuckthorn works to reduce inflammation and supports the body's natural healing ability.

Taken internally or applied topically seabuckthorn seed and fruit oils deliver a powerful anti-inflammatory punch! Fifteen phytosterols, seventeen carotenoids, all the isomers of Vitamin E and the essential omega 3, omega 6 and omega 7 have each been identified as effective anti-inflammatories and between them, seabuckthorn seed and fruit oils contain them all! Applied topically the oils not only reduce inflammation but they regenerate cells, ease discomfort, nourish and soften dry and over-reactive skin and provide a protective barrier against water loss and infection – supporting the skin's natural healing capacity.

High in quercetin, isorhamnetin and kaempferol as well as vitamin C, superoxide dismutase, carotenoids and vitamin E - juices, teas and capsules from the seabuckthorn berry and leaves are potent antihistamines. Reduction of histamine retards the acceleration of

inflammation that normally results from histamine release, allowing the tissues to normalize and reducing redness and swelling.

The leaves of seabuckthorn are loaded with a variety of anti-oxidants, anti-inflammatories and essential nutrients. Tannins, vitamin E, carotenoids, ferulic acid, folic acid, ellagic acid, amino acids, salicylic acid and more work from the inside to calm the overactive inflammatory response and sop up free radicals. Calcium, magnesium, potassium and other minerals provide needed nourishment to the cells. Extracts of the leaves can also be added to skincare products to nourish, hydrate and soothe inflamed and stressed tissue.

All this is very good news. It is becoming clear that a chronically overzealous and inappropriate immune response is a major contributor to acute and persistent disease, disability and reduced quality of life. So far, most of the cures are not much better than the disease and the requirement for effective measures to control and reduce inflammation through natural and non-destructive means is most pressing. Seabuckthorn is a very promising candidate. The fortunate intersection of current research into the many facets of inflammation with the benefits of seabuckthorn will hopefully point the way to a more gentle and effective strategy for managing the double edged sword that is inflammation.

Susan McLoughlin is the President of Seabuckthorn International Inc. Peachland, BC Canada.

In partnership with her late husband, Ms. McLoughlin pioneered the seabuckthorn industry in Canada. Educated at UBC, she is currently engaged in the manufacture and marketing of nutraceuticals and cosmeceuticals from seabuckthorn. Ms. McLoughlin can be reached at smcl@shaw.ca or 250 767 6100.

You can read more about seabuckthorn by visiting the Seabuckthorn International Inc. website at: www.seabuckthorn.com