Arabinogalactan from the Larch tree, provides water-soluble polysaccharides and fiber that supports Immune System Function and Microflora Balance in the Gastrointestinal Tract and provide further benefits to the G.I Tract by supporting the growth of probiotic bacteria such as Lactobacilli and Bifidobacteria in the intestines. Arabinogalactan has also been found to exhibit anti-inflammatory actions and may enhance vascular permeability.

Arabinogalactan's role as an immune-boosting phytochemical has gained popularity. It has been reported to stimulate macrophages and other immune system components better than echinacea, although echinacea contains some arabinogalactans. Arabinogalactans have also been reported to increase the release of interferons, tumor necrosis factors, and interleukins, all of which are known to enhance immune function.

Arabinogalactan displays moisture retention, flavor encapsulation, film-forming capabilities, and desirable viscosities for a pleasant feeling in the mouth as both a natural and functional food ingredient. Also, its role as a dietary fiber and its solubility properties make arabinogalactan an important polysaccharide. Its properties may be influenced by different side chain moieties on the molecule.

From the Larch tree, Arabinogalactans are present in species L. dahurica and L. occidentalis. Arabinogalactans are long, densely branched, high molecular weight polysaccharides found throughout the plant kingdom and in some microbial systems. They are abundant in the genus Larix and are most often covalently linked to pectin and protein. The powdered extract from the pine bark of the western larch tree, for example, is 98% arabinogalactan. This substance has a pine odor, a sweet taste, and is easily soluble in water.

All arabinogalactans isolated thus far from Larix , are the 3,6-beta-D-galactan type. The extract is harvested from already fallen trees, otherwise a waste product from the lumber industry. A benefit of this natural polymer is that it possesses great uniformity. Batch variation is not a problem among larch trees that it is with other natural products. Arabinogalactans from L. occidentalis have been isolated, characterized, and purified as discussed in one report. Properties of arabinogalactans from L. dahurica have been documented as well, finding a homogeneous product with very narrow molecular weight distribution.

Other constituents from Larix have been identified. Larix flavonoids from various species have been analyzed, including flavanones (naringenin, hesperitin, hesperidin), flavones (apigenin, vitexin), and flavonols (kaempferols, quercetins, isorhamnetins, myricetins, and syringetins). L. decidua contains lignans, resins, and volatile oil (mainly alpha- and betapinene and limonene). 18-nor-abietatrienes and diterpenes, including abietane-type diterpenes (eg, 7alpha,15-dihydroxyabieta-8,11,13-trien-18-al), have been isolated from species L. kaempferi . Phenolics (flavonoids) from L. leptolepis have been reported. Resin constituent diterpene from L. europaea has been documented.

Animal data

Liver metastases in animals have been inhibited by arabinogalactans. Human peripheral blood mononuclear cells and other cell lines have shown enhancement of natural killer cytotoxicity against certain tumor cells when pretreated with arabinogalactans extracted from L. occidentalis .

Arabinogalactan has properties that make it an ideal carrier to deliver agents to hepatocytes via the asialoglycoprotein receptors. Of radiolabeled arabinogalactans, 52.5% (4 mg/kg) were identified in the livers of rats receiving IV injection. Arabinogalactan is highly bound to this receptor in both in vitro and in vivo experimentation. In one study, it was reported that those arabinogalactans with a lower molecular weight may be more desirable for hepatic drug delivery than others. In another study, arabinogalactan conjugated with the antiviral vidarabine was effective in suppressing serum viral DNA titers in woodchucks infected with the hepatitis virus.

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