AGR*2150

Promoting Nepalese Agrifood Exports to Canada

Hippohphae salicifolia or Sea Buckthorn

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November 11th, 2015

Product Description

Hippophae belongs to the family or genus Elaegnaceae, but is frequently referred to as sea buckthorn (Rajesh Rajchal, 2009). Further classification is often disputed because of its long history of domestication throughout the world. Taxonomical studies indicate that the subspecies of *Hippophae salicifolia* is most commonly used in Nepal and the Himalayan mountains (Rajesh Rajchal, 2009). The species is most commonly found in elevated areas, suggesting its ability to adapt ecologically. *H.salicifolia* has proven to be a multifunctional plant. Sea Buckthorn has the capacity to produce fruits, which mature between 12-15 weeks and rest on branches for a number of months. This indicates flexibility with regards to harvesting. Studies also indicate that berries may contain greater amounts of vitamin A than carrots and oranges (Rajesh Rajchal, 2009). Sea buckthorn seeds contain important fatty acids and carbohydrates, and their leaves contain significant amounts of protein and fiber. Sea buckthorn plants are also cultivated for medicinal purposes- it's vitamin and oil content offer significant antioxidants, which can be used to alleviate pain and inflammation (Rajesh Rajchal, 2009). The exacerbation of environmental problems and social issues related to poverty, signal the urgent need for a commodity with many socio-economic benefits such as *H.salicifolia* (Rajesh Rajchal, 2009).

Agronomic Issues & Overcoming Constraints

Sea buckthorn is a versatile crop and currently faces few threats that are related to diseases and insects (Li & Beveridge, 2003). However, increased usage of this crop

might indicate more agronomic constraints in the future. The prevalence of weeds proves to be a current agronomic constraint. Weed control is specifically important when sea buckthorn shrubs are newly planted. At this stage, root systems that weeds possess are uncompromising and have tendencies to grow more rapidly than sea buckthorn shrubs-this instigates greater seedling mortality in comparison to any other cause (Li & Beveridge, 2003). Weed control is imperative until sea buckthorn is large enough to shade weeds themselves. Mechanical and hand cultivation can be sufficient with regards to controlling weeds. Successful cultivation depends on the ability to cultivate shallowly (8 cm) in order to prevent any damaging to the tree's root system (Li & Beveridge, 2003). Row covers or mulches that are established between trees and within rows are capable of diminishing the pervasiveness of weeds and simultaneously ameliorate soil moisture to improve growth (the use of black plastic has similar benefits) (Rajesh Rajchal, 2009). Thorns found on the branches of sea buckthorn are another agronomic impediment that continues to prevail. The intensity of thorns found on sea buckthorn varies, but thorns tend to be very hard and extend off each branch (Rajesh Rajchal, 2009). The removal of thorns can be quite labour intensive and could potentially affect sea buckthorn as a cash crop-there is a need for proper mechanical harvesting techniques. Labour intensity is ameliorated by scissors-like combs, which comb fruits off the branches. Removing branches all together, shaking them in axial directions, or beating branches using sticks also prove to be common methods of harvesting (Li & Beveridge, 2003). These harvesting techniques reduce the possibility of harm from thorns. In future, an increase in genetic breeding of sea

buckthorn could select for branches without thorns-evidently avoiding this problem altogether. Weeds and thorns therefore, do not have to compromise the harvesting of *H.salicifolia*. By considering both weeds and thorns, farmers can increase their productivity in practical ways and increase the potential of sea buckthorn as a cash crop.

Environmental Sustainability

Interest in Sea buckthorn has expanded in recent years and remains quite promising as an export product. Biological features, such as the sea buckthorn's root system are extremely favourable because they conserve soil (specifically on fragile slopes) (Rajesh Rajchal, 2009). Sea buckthorn also has the capacity to adapt to several temperatures and soil types. The crop can withstand low temperatures, salinity in the soil and is resistant to drought, proving that it is very versatile in comparison to other crops. Because of their nitrogen-fixing competency, sea buckthorn shrubs also require less fertilizer. Evidently this reduces input costs, which could otherwise affect less affluent farmers, and simultaneously results in less environmental damage. A sea buckthorn forest, 8-10 years in age has the ability to fix 180 km of nitrogen/ha/year as described by Lu (1996) in research conducted by Rajchal (2009). This implies that environmental quality will not necessarily be exacerbated in Nepal through the export of sea buckthorn products.

Health Information

Hippophae salicifolia is very commonly known for its medicinal purposes. Ethnobotany acknowledges the ways in which plant use can achieve many human needs (Uprety, Asselin, Boon, Yadav, & Shrestha, 2010). Indigenous communities depend on medicinal plants as a means of healthcare and consequently possess important knowledge. Uprety, Asselin, Boon, Yadav, & Shrestha, (2010) conducted a study in Nepal to identify medicinal plants with significant influence and to determine which plants could ameliorate which medical conditions. They determined that *H.salicifolia* is commonly used to ameliorate gastro-intestinal disorders and menstrual disorders (Uprety, Asselin, Boon, Yadav, & Shrestha, 2010). The Informant Consensus Factor among the indigenous participants indicated a 0.95 agreement rate that *H.salicifolia* improves menstrual disorders.

Supporting Women

The NGO "HimalAsia" aims to secure income-generation for local communities by promoting local culture (Heid, 2006). The organization developed three committees in order to help low-income women pursue sustainable livelihoods through sea buckthorn products. Nursery gardeners and forest harvesters extract oils, seeds and juices from sea buckthorn plants and aim to sell these products on the market (Heid, 2006). This enables women to pursue endeavors that support their indigenous land, to earn sustainable incomes and to improve social conditions such as poverty.

H.salicifolia can also support women in Canada who suffer from menstrual disorders. Treatments in North America generally only include hormonal therapies (e.g. birth control), or surgical procedures (University of Maryland, 2015). The Journal of Obstetrics and Gynaecology Canada (2013) indicated that 30% of women require medical assistance for abdominal uterine bleeding during their reproductive years. *H.salicifolia* is a natural way to counteract menstrual disorders for women in Canada.

Export Potential

The export of *H.salicifolia* would be very successful on a Canadian market. The versatility of this product (medicinal and nutritional purposes) could target the vast majority of Canadians. The export of *H.salicifolia* specifically for menstrual disorders might target a smaller community-but nevertheless targets an important group that is in need of greater access to menstrual disorder treatments. If sea buckthorn is to be transported to a processing plant, pre-coolers (wind tunnels) can be established quite inexpensively. It is recommended that products should be contained within wrapping, stored in very cool temperatures and processed within a month. Fruit, however can be stored for a year without any damage (Rajesh Rajchal, 2009). In order to export *H.salicifolia,* Canada must be granted authorization under the Export and Import permits Act, and further licensing with regards to import permits may be required (Canada, 2015). The Canadian Food Inspection Agency may have to be consulted, and other technical barriers may exist through Trade Controls (Canada,

2015). The Canadian Trade Commissioner Service (TCS) aids Canadian businesses with their joint ventures and alliances abroad, and the Canada Fund for Local Initiatives (CFLI) provides financial assistance to NGOs that pursue projects that are related to human rights and sustainability. Therefore, despite certain barriers that exist, the TCS and CFLI might be able to aid in the export of sea buckthorn to Canada.

Potential Canadian Companies Interested In Exporting *Hippophae salicifolia*

1) Canadian Association of Naturopathic Doctors (CAND)
20 Holly St., Ste. 200
Toronto, Ontario, Canada M4S 3B1

Tel: 416-496-8633
Toll-free: 1-800-551-4381
Fax: 416-496-8634

2) Healthy Planet
47 Railside RD
North York, ON, M3A1B2

Tel: 416-640-5713
Toll-free: 416-446-1459
Fax: 1-888-974-4722

3) Truly Organic Foods
Email: info@trulyorhanicfoods.com
Phone: 905-937-8209
Toll-free: 1-800-717-0448

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