

Seabuckthorn : Boon to boost immunity under current COVID-19 pandemic situation

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Introduction

With the outbreak of current pandemic situation, concerns raise regarding immunity have become more important. Adequate nutrition is an important way to help reduce the risk and impact of virus infections, as well as to build a more resilient immune system over the long term. Eating enough nutrients as part of a varied diet is required for the health and function of all cells, including immune cells. Certain dietary patterns may better prepare the body for microbial attacks and excess inflammation, but it is unlikely that individual foods offer special protection. Each stage of the body's immune response relies on the presence of many micronutrients. Examples of nutrients that have been identified as critical for the growth and function of immune cells include vitamin C, vitamin D, zinc, selenium, iron, and protein (including the amino acid glutamine). They are found in a variety of plant and animal foods. Heaven's Holy Fruit, the wonder berry from the Himalayas- wild **Sea Buckthorn** is known as nature's most balanced fruit. **Sea buckthorn** is a plant of extreme temperate region. The shrub serves as an ideal plant in Trans Himalayan region of Ladakh, particularly for researchers in the field of biotechnology, nutraceutical, pharmaceutical, cosmetic and environment sciences (Stobdan *et al.*, 2008). All species are diploid ($2n = 24$), cross pollinated (wind) and dioecious, which restricted to the Qinghai Plateau and adjacent areas, with the exception of the species *Hippophae rhamnoides* L. that occurs widely but sporadically in Asia and Europe (Stobdan, Korekar, and Srivastava, 2013). *It is also grown commercially in many countries. China is the largest grower of this fruit in the world.*

Importance and its health benefits



Sea Buckthorn contains more than 190 biologically active compounds. Included in these 190 nutrients, many of which being water soluble cannot be stored by the body and are essentially required by the human body every single day, are Vitamins and minerals and, Omega 3, 6, 7, and 9, Lipids, Organic Acids, Amino Acids, Folic Acid, Tocopherols, Flavonoids and antioxidants. It supports healthy cardio vascular function, sustains proper brain and nervous system function, promotes healthy skin and hair, enhances integrity of mucous membranes, supports healthy digestive system function, promotes healthy urogenital lining. Its minerals help produce energy, supports growth, supports reproduction and health and are anti-inflammatory. Sea Buckthorn assists in normal process of healthy inflammatory response and relieves sore joints. Its Carotenoids and Beta carotenoids assist in slowing aging process and lycopene - maintains prostate and colon cell health, Zeaxanthin - supports eye health. Sea Buckthorn enhances mental clarity, sustains natural energy, promotes stamina. Its flavonoids help fight cell damaging free radicals, assist in the process of healthy cellular rejuvenation, promotes healthy immune system function. Its anti oxidants fight cell damaging free radicals, provides anti aging benefits and supports healthy cell reproduction.

Sea Buckthorn has been thoroughly researched in over 130 modern scientific studies that have found that this berry promotes health. There are more than a hundred popular sea buckthorn-based formulations in various pharmacopeias of Sowa Rigpa (Tibetan medicine). Seed oil contains vitamin K which promotes blood coagulation because of its catalytic role in forming prothrombin (Rongsen, 1992). Sea buckthorn leaf aqueous extract has significant anti-stress and adaptogenic activity (Saggu *et al.*, 2007). It was found to possess a very strong anti-viral activity and wide range of action against influenza and herpes viruses. It also showed an inhibitory effect in a HIV infection in the cell culture and antimicrobial activity (Shuunguang and Chaode, 2001). The leaf extract also has a significant anti-dengue activity when evaluated in dengue virus Type 2 infected blood (Jain *et al.*, 2014). Whole plant (fruit, leaf, and tree) of Seabuckthorn is known to be a great origin of a broad range of active biological substances contained in berries and leaves, are very plentiful in a diversity of vitamins and other biologically active materials like phenols, carotenoids, flavonoids, tocopherols and sterols, which have potent medicinal properties and high nutrients (Beveridge *et al.*, 1999, Pop *et al.*, 2013). Mainly, the berry of Seabuckthorn has been recorded to be a prosperous source of carotenoids and vitamin C, E (Zhong, 1989, Ganju *et al.*, 2005).



In 2013, some researchers reported that the Seabuckthorn berry and leaf are rich in flavonol glycosides of isorhamnetin and quercetin derivatives. The flavonol glycosides content on leaves 917 mg/100 g and leaves contented flavonol glycosides higher than berries, 1118 mg/100 g on average (Pop *et al.*, 2013). Seabuckthorn recorded a broad range of biological activities as an antioxidant (Geetha *et al.*, 2008, Narayanan *et al.*, 2005), anti-inflammatory (Padwad *et al.*, 2006, Kwon *et al.*, 2011), anticancer (Grey *et al.*, 2010, Hibasami *et al.*, 2005), antiviral (Jain *et al.*, 2008) and antimicrobial (Chauhan *et al.*, 2007, Upadhyay *et al.*, 2010). The Recent clinical test shows that berries of Seabuckthorn did not prohibit common cold or digestive track infections however, reducing serum C-reactive protein, a marker of inflammation, and a reason for the cardiovascular disorder (Larmo *et al.*, 2008).

Conclusion

Seabuckthorn is a medicinal plant that is used to prevent cold. It was tested for its metabolic content followed by activity against cancer and virus. Several studies provide significant information concerning Seabuckthorn for further medicinal drug development. Thus, it is one of the most potential fruit that need to be popularized among people for its role in boosting immunity which is the need of the hour.

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