

# Tagrol H1 – Microencapsulated Sea Buckthorn Oil – A Stable, Synergistic Natural Complex of Multi-Vitamins and Actives

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## Abstract

Hippophae/Sea Buckthorn oil is a superior biological active material containing multiple active ingredients and a natural multi-vitamin complex. The synergistic effects of these actives provide a wide range of unique properties to dermal cosmetic products: the oil accelerates the skin regeneration process, speeding up the healing of damaged skin while improving the skin's appearance and texture by slowing down the aging process. To maintain the unique biological activity of Sea Buckthorn oil and prevent oxidation of its unstable ingredients in cosmetic formulations, Tagrol H1 microcapsules were developed, which deliver stable active ingredients onto the skin upon application.

Tagrol H1 is 25% microencapsulated natural Hippophae/Sea Buckthorn Oil developed and manufactured by patented microencapsulated technology.

## Background

Baby boomers and young women of today are increasingly striving to maintain their youth, preserve their beauty and fight the visible signs of aging. To meet this demand, researchers are continuously seeking treatment options for this formidable task. The solution, however, may be simple, and we merely have to look to nature itself: introducing Sea Buckthorn oil/Hippophae Rhamnoides oil, a unique complex of multi-vitamins and active ingredients that offers an ideal natural solution to aging skin.

Sea Buckthorn/Hippophae is an extraordinary plant possessing exceptional medicinal and nutritional benefits that was used in both ancient Europe and Asia as a source of herbal medicines, health foods and natural skin care<sup>1,2,3</sup>. The plant grows close to water sources in Scandinavia, Russia, Himalayas and parts of Europe. The oil is extracted from the fresh berries & fruits of Sea Buckthorn via cold pressure process.

## Composition of the Oil

Sea Buckthorn is one of the only plants<sup>4</sup> containing almost the full range of all basic vitamins or provitamins. Sea Buckthorn oil is rich in a wide range of lipophilic and hydrophilic bioactive compounds such as carotenoids, sito-sterols, flavanoids,

vitamins A, K, E, C, B1, B2, folic acid, essential fatty acids, lipids, amino acids, and microelements<sup>5</sup>. Biological studies suggest that the restorative action of the Sea Buckthorn oil may be in part due to the synergistic effect of its components, all of which are important for the maintenance of healthy skin<sup>2</sup>. The oil acts as a powerful antioxidant agent due to its high content of carotenoids (130mg%, about 20 times higher than carrot oil), phytosterols and flavanoids. The high concentration of characteristic unsaturated fatty acid, palmitoleic acid and a very high concentration of carotenoids & tocopherols (300 mg%, of which up to 90% is Alpha tocopherol) in Sea Buckthorn oil, are claimed to promote the healing of damaged skin. Tocopherols and carotenoids present in the oil are able to trap and reduce the formation of UVB-induced toxic compounds in skin cells.

## Properties

The most distinctive properties of Sea Buckthorn oil are its rejuvenating, restorative and moisturizing effects on skin and mucous membranes due to its free radical scavenging and tissue regeneration properties. Over 200 conducted studies confirm the multiple advantages of Sea Buckthorn oil in skin care. The oil helps combat wrinkles, dryness and other symptoms of malnourished or aging skin. The oil's general nutritive, revitalizing and restorative properties can also be used in treatment of burns [6]. Clinical studies at the Shantow Tropical disease Hospital and the Shanxi Pharmaceutical Research Institute indicate that Sea Buckthorn oil can actually improve skin metabolism and retard skin maturation, thereby slowing down the aging process. Sea Buckthorn oil also contributes to the reduction of the damaging effects of sun radiation due to its wealth in nutrients required for the metabolism of healthy skin<sup>7</sup>.

## Stability

Sea Buckthorn oil is chemically stable as a raw material; however, when incorporated in cosmetic formulations the active ingredients of Sea Buckthorn oil cross react with other formulation components and are therefore exposed to oxidative degradation, resulting in degradation of their original functional properties. The carotenoid molecules lose their antioxidant properties after oxidation, which can be noted by the decrease