berries and from 43–188 mg/kg^{-1} in berry oil (Kallio et al. 2002). The content of these bioactive compounds are among the crucial criteria for defining the quality of sea buckthorn. Oil derived from its juice contains more vitamin E (216 mg/100 g of fruit) than its seeds (64.4–92.7 mg/100 g of seed). The tocopherol fraction consists of approximately 50% α-tocopherol, 40% β-tocopherol and 10% γ-tocopherol (Mironov 1989).

12.2.2 Medicinal Properties

Sea buckthorn has been used in the traditional Tibetan system of medicine for centuries. The medicinal value of sea buckthorn was recorded as early as the 8th century in the Tibetan medicinal classic *rGyud Bzi* (Four Texts of Fundamental Tibetan Medicine). In the book, 84 different prescriptions for the preparation of sea buckthorn medicines is recorded. During the 13th century, the *rGyud Bzi* was disseminated through Mongolia, and since then, sea buckthorn began to be used in traditional Mongolian medicines. The three major species of sea buckthorn have been established in Tibetan medicine as *Sa-sTar* for *H. tibetana*, *Bar-sTar* for *H. rhamnoides*, and *Nam-sTar* for *H. salicifolia*. The classification is based on plant height. *Sa* means 'ground', *Bar* means 'middle' while *Nam* means 'sky'. Of these, *Bar-sTar* is the most commonly used species in Tibetan medicine (Gurmet 2009). The plant is identified as the Ayurvedic medicinal plant *Amlich* or *Badriphal* (Sharma and Chunekar 1998). China listed sea buckthorn in its pharmacopoeia way back in 1977. In the Ladakh region, even today, *Amchies* (local traditional doctor) often prescribe preparations from sea buckthorn for the treatment of common problems like indigestion, throat-infection, gynecological problems, ulcers, gastritis, bronchitis, acidity, diarrhoea, hypertension, blood disorders, fevers, tumours, gallstones, coughs, colds, food poisoning, etc.

Sea buckthorn oil is a valuable product used in medicine as a nutraceutical supplement and in cosmetics. Lipids from sea buckthorn leaves have been recommended for anti-burn and wound healing properties. The presence of a high content of α-tocopherol has significant healthful effects which act as natural antioxidants in the human body. The carotenoid content of sea buckthorn oil ranges from 314–2139 mg/100g (Zhang et al. 1989). It is indicated that the carotenoids consist of approximately 20% β-carotene, 30% γ-carotene, 30% lycopene and 15% oxygen-containing carotenoids. Phytosterol is also constituents of sea buckthorn oil which are capable of lowering plasma cholesterol on consumption by humans. The major phytosterol is sitosterol (β-sitosterol) and 5-avenasterol. The total quantity of phytoesterol in whole sea buckthorn fruits ranges from 340–520 mg/kg and is 4 to 20 times more than soybean oil. A novel triglyceride, 1,3-dicapryloyl-2-linoleoyl glycerol has been isolated and its structure was elucidated by Swaroop et al. (2005).

The plant has been extensively exploited in recent years for treatment of stomach malfunctioning, sluggish digestion, thrombosis, neoplasia, hepatic injuries and tendon and ligament injuries. Clinical trials on patients with ischemic heart disease have shown that the total number of flavonoids of sea buckthorn can reduce cholesterol levels and thereby improve the cardiac functions. The mechanisms of action may include reduced stress of cardiac muscle tissue by the regulation of inflammatory