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Nutritive Value of Deoiled Cake of Seabuckthorn (*Hippophae rhamnoides* L.)

Population in Cold Desert Ecosystem of Himachal Pradesh

Nutritive value of Deoiled cake of Seabuckthorn (Hippophae rhamnoides L.) was carried out among nine major gene pool areas and three growing conditions in cold desert ecosystem of Spiti Valley of Himachal Pradesh. The present study is an outcome of the survey of Seabuckthorn populations. After the seed oil extraction from each gene pool area, and three growing condition viz., Pure stand, Mixed stand and Crop land, deoiled cake was evaluated for nutritional parameters. Maximum value of crude protein (31.51%), starch content (53.99%), total sugar (6.00%) of deoiled cake were recorded for Sheigo (GPA3), among different gene pool areas of Spiti Valley of Himachal Pradesh. On the other hand, in case of growing condition, maximum value of crude protein (30.90%), starch content (53.61%), total sugar (5.96%) of deoiled cake were recorded for GC3 (Crop Land). In overall performance for chemical characteristics of deoiled cake, the GPA3 (Sheigo) was found to be best in all gene pool areas and GC3 (Crop land) was found to be best with in growing conditions. Moderate protein content, total sugar content and high starch content present in deoiled cake suggest it as good poultry feed.

Key words: Nutritive value, Seabuckthorn, Cold desert, Gene pool area, Spiti valley, Himachal Pradesh.

Maximum crude protein, starch content and total sugar in Seabuckthorn deoiled cake was recorded for crop land.

Introduction

Seabuckthorn (Genus: *Hippophae*) is a berry-bearing, hardy shrub of the family Elaeagnaceae, naturally distributed in Asia and Europe and also introduced in North and South America. It includes 4 species (*Hippophae rhamnoides, Hippophae salicifolia, Hippophae tibetana* and *Hippophae neurocarpa*) and further 9 subspecies of *Hippophae rhamnoides* are reported so far from the world. It is a unique and valuable plant currently cultivated in various parts of the world. The natural habitat of seabuckthorn extends widely in China, Mongolia, Russia, and most parts of North Europe. It can withstand extreme temperatures from -43°C to 40°C and is considered to be drought resistant.

Hippophae, commonly called Seabuckthorn and locally known as Chharma or Sutz or Sarla, occupies an important position as a valuable bio resources in the cold desert of Himachal Pradesh, Jammu and Kashmir, Uttarakhand, Sikkim and Arunachal Pradesh. It possesses outstanding qualities such as nitrogen fixing (60 to 180 kg/ha/yr), as soil binder, reduce top soil erosion by 30 per cent and retains soil moisture up to 80 per cent. It has extraordinary capability to grow under harsh environmental conditions, on barren soils, improve physical and chemical properties of soil and invades open areas as pioneer species. Certain characters of seabuckthorn such as wide ecological adaptation, fast growth, strong coppice and suckering habit coupled with efficient nitrogen fixation makes this plant well suited in soil and water conservation, soil improvement and marginal land reclamation (Rongsen, 1992; Khosla *et al.*, 1994 and Sankhyan *et al.*, 2005).

In the view of great economic and ecological potential of the species, a number of studies have been conducted in different regions to assess the morphological and biochemical variations in natural growing populations of Seabuckthorn in Himachal Pradesh and Ladakh region of Jammu and Kashmir (Khosla *et al.*, 1994; Sankhyan *et al.*, 2006; Singh and Dogra, 1995;

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