

Chemistry Research and Applications

# NATURAL PRODUCTS AND THEIR UTILIZATION PATTERN

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**Chapter 8**

**ROLE OF *PRINSEPIA UTILIS* ROYLE A NATURAL OIL  
YIELDING SPECIES IN LIVELIHOOD GENERATION  
OF LOCAL HILL COMMUNITIES**

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**ABSTRACT**

The Indian Himalayan forests hold key to India's biological security and are the actual providers of timber, medicines, fibers, oils, fuelwood, natural compost and fodder. There are several oilseeds producing trees and shrubs species in the region. *Prinsepia utilis* Royle is one of the oilseeds producing shrub species which is commonly known as Bikhhal and occurs between 1600 and 3000m elevation in the Himalayan region. It belongs to family Rosaceae. It is well known principal source of edible oil derived from seeds and has medicinal properties. The objectives of the study are to identify the potential areas of *Prinsepia utilis* Royle, to assess regeneration status, oil yield and role of the species in the livelihood generation of local population in the region. Total 92 promising areas of *P. utilis* were identified in different parts of Uttarakhand. Total 07 potential sites were studied in which density of the species ranged from 540 to 940 indi/ha. Total 140 superior individuals of the species were marked in the studied sites and mean kernel oil content percent ranged between  $26.03 \pm 2.3\%$  and  $39.22 \pm 2.1\%$  (on kernel dry weight basis). The average fruit yield ranged from 1.99-3.71  $\text{tha}^{-1}$ , seed yield 0.72-1.34  $\text{tha}^{-1}$ , kernel yield 0.69-1.30  $\text{tha}^{-1}$  and oil yield 0.29-0.54  $\text{tha}^{-1}$ . The average net income through 1.0 ha plantation ranged between Rs. 0.55 and 1.47 lakh  $\text{ha}^{-1} \text{ year}^{-1}$ . Production of such oil yielding species on wastelands/community land meets the twin goals of restoration of essential natural assets

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and play a vital role in providing the opportunities of livelihood generation to the local communities of the region.

**Keywords:** *Prinsepia*, livelihood, kernel, oil content

## 8.1. INTRODUCTION

The Himalaya vegetation ranges from tropical dry deciduous forests in the foot hills to alpine forests close to the timberline and finally alpine meadows over the timberline. The great diversity and richness of the vegetation of Himalayan has drawn enough consideration, the main emphasis having been on some economic aspects and the other enormously vital parameters. (Negi, 2009). Seeds of many trees/shrub species contain high levels of oil and used for several purposes and known as tree/shrub borne oilseeds species (NMOOP, 2014). These species are facing the problem of regeneration and severe exploitation. The fruits/seeds are collected before maturity effecting germination and recruitment (Sundriyal and Sundriyal, 2001; Dhar et al., 1999). Thus regeneration studies of the tree/shrub borne oilseeds species have significant applications on the management and conservation of such species.

There are several trees/shrub species growing in Uttarakhand which have the potential to yield edible/non edible oil coupled with multipurpose uses and climate of Uttarakhand is suitable for the cultivation of these species. *Prinsepia utilis* Royle is one of the under-utilized wild edible oil shrubs. It is still being used as a substitute of edible oil in some remote areas/villages of Kumaun and Garhwal Himalayan located between 1600-3000m elevations. The seeds of the species are principal sources of edible oil in the remote areas of Himalayan region. The *Prinsepia* seed oil is used for cooking and body massage by the local communities (Maikhuri, 1995). Considering the way that India imports edible oil and Uttarakhand has ideal climatic conditions with adequate wastelands, such species can be an option under huge - scale afforestation plan to increase self-sufficiency in edible oil production (Nautiyal, 2013).

The economy of rural areas of Uttarakhand is predominantly based on agriculture and other activities related to agriculture sector. Hence a vast majority of rural population is mainly depending on agriculture sector both for its employment and livelihood. There is an urgent need to explore viable livelihood opportunity for improving the income of these poor and marginal farmers. The production of such oilseeds producing species can play an important role in providing the opportunities of employment and incomes to the local communities of the region. Environmentally, the gains can be in the form of reduced erosion, improved micro-environment for intercrops, enhanced soil fertility, production of edible oil and by-products for various uses. In the present study we have tried to identify the potential areas of *Prinsepia utilis* Royle, to assess regeneration status, oil yield and role