Clary Sage (*Salvia sclarea L.*) Variety

‘Him Sage’

(CSIR-IHBT-SS-07)

Introduction

Salvia sclarea is a high-value medicinal and aromatic plant belonging to the family Lamiaceae. The essential oil obtained from clary sage is widely used in the perfumery, cosmetic, pharmaceutical and aromatherapy industries. The increasing global demand for natural products has significantly enhanced the importance of clary sage essential oil in the fragrance market. The economic value of clary sage largely depends upon fresh inflorescence yield and sclareol-rich essential oil content. Environmental factors such as altitude, temperature, rainfall and soil type greatly influence biomass production and essential oil composition. However, superior and stable genotypes suitable for Western Himalayan conditions were limited. Therefore, systematic multi-location trials were conducted to identify high-yielding and stable genotypes.

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Him Sage (CSIR-IHBT-SS-07)

The variety 'Him Sage' has been identified by CSIR–IHBT, Palampur through multi-location evaluation and stability analysis. The genotype CSIR-IHBT-SS-07 was selected based on higher fresh inflorescence yield, stable essential oil content and superior sclareol percentage. This genotype recorded significantly higher fresh inflorescence weight (418.73 g/plant) along with stable essential oil content across tested environments. The sclareol content ranged from 23.39% to 45.17%, making it highly suitable for industrial utilization. Stability analysis of Him Sage indicates wide adaptability across Multiple locations.

Morphological characters of 'Him Sage' in mid to high hills of Himachal Pradesh

Salvia sclarea exhibits a vigorous, erect and profusely branched growth habit under Western Himalayan conditions. The genotype produces robust stems with abundant secondary branches and a wider plant spread, contributing to superior biomass production. It recorded the highest fresh inflorescence weight of **418.73 g/plant** across multi-location trials. The inflorescences are well-developed, compact and terminally arranged spikes, supporting higher essential oil accumulation. Essential oil profiling revealed stable performance with sclareol content ranging from **33.5%** across environments. The balanced canopy architecture and strong root system enhance adaptability and ensure consistent yield under diverse temperate conditions.

Harvested seeds of Clary sage var. 'Him Sage'

Germinated seeds of Clary sage var. 'Him Sage'

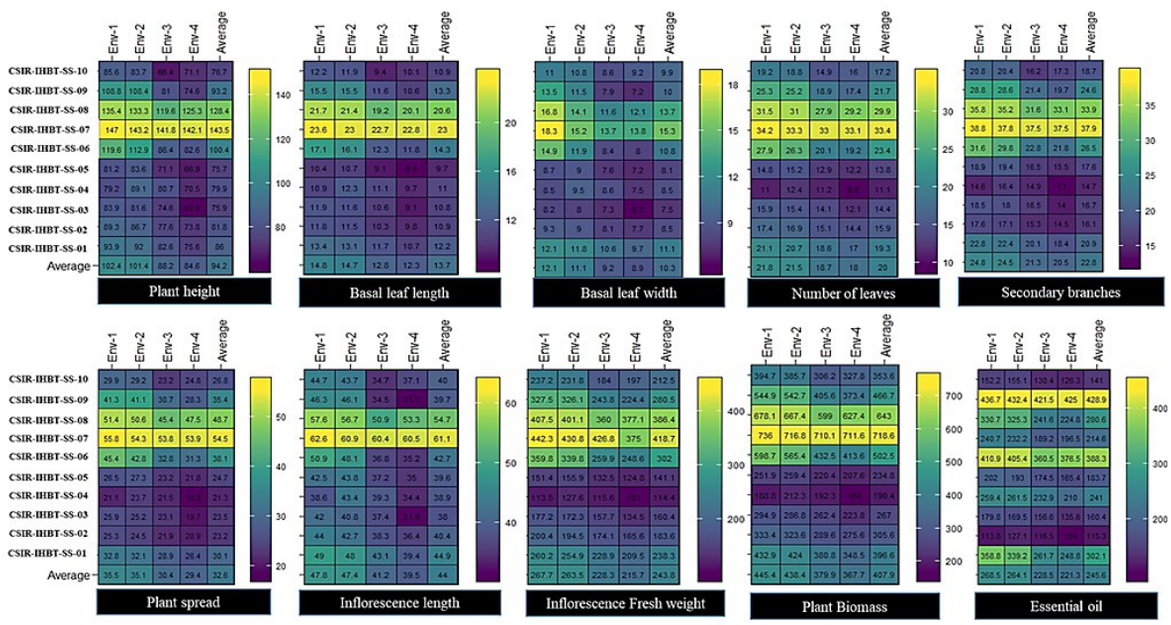
Plant in open field cultivation of Clary sage var. 'Him Sage'

Cultivation practices for 'Him Sage'

Clary sage cultivation in mid- to high-hill regions of Himachal Pradesh is highly promising due to favorable climatic conditions. Clary sage is a temperate crop requiring 6–8 hours of sunlight daily. It prefers well-drained loamy soils. Moderate rainfall conditions are suitable, but proper drainage is essential to avoid root rot. Slightly alkaline to neutral pH (6.5–7.5) is optimal. Recommended spacing: 45–60 cm between plants and 1.0–1.2 m between rows. Regular irrigation is required during establishment phase. Harvesting of flower spikes is done when they are fully developed, generally during mid-summer.

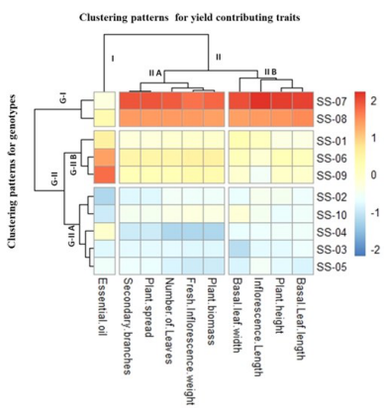
Comparative performance of 'Him Sage' at multi-location in Himachal Pradesh

Ten superior selections were evaluated in randomized block design (RBD) across four locations in Himachal Pradesh representing mid-hill to temperate zones. The experimental sites varied in altitude and soil characteristics. Significant genotype × environment interaction was observed for fresh inflorescence weight and essential oil content. The selection CSIR-IHBT-SS-07 recorded significantly higher fresh inflorescence yield and stable essential oil content at all locations. Hence, Proposed as superior cultivar as 'Him Sage'



Comparative representation of morphological traits and essential oil content of 'Him Sage' (CSIR-IHBT-SS-07) with other potential selections at multi-locations

Open field cultivation of Clary sage var. 'Him Sage'



Oil Extraction

The extraction of essential oil from flowers is generally carried out using the hydro-distillation method. The quantity of oil may vary depending on climatic conditions and the flowering stage. The essential oil of clary sage is colorless to light yellow. The extracted oil is dehydrated using anhydrous sodium sulfate (Na_2SO_4) and stored in amber-colored dark glass bottles at 4°C. The composition of essential oil may vary according to geographical location, altitude, and season.

Yield

With improved cultivation techniques, a flower yield of tons per hectare can be obtained. The essential oil content and average oil yield are about 0.15–0.19% and 20–22 kg per hectare, respectively. Also, spectroscopic characterization of essential oil disclosed that CSIR-IHBT-SS-07 was unique in terms of the highest sclareol content (33.5%) across all the test environments.

Income – Expenditure

In clary sage cultivation, the estimated investment cost is approximately ₹0.80 lakh per hectare. The total income from cultivation can be around ₹3.00 lakh per hectare, and the net income may reach approximately ₹2.20 lakh per hectare.

Table 1: Major Chemical Constituents of Clary Sage Essential Oil

Chemical Component	Percentage
Linalyl acetate	10–20
Linalool	6–20
Sclareol	23–45
Geranyl acetate	4–7
α-Terpineol	2–3

Essential oil extraction of Clary sage var. 'Him Sage' through hydrodistillation

Essential oil extracted from Clary sage var. 'Him Sage'

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