



HIM GOLD

An Improved Variety of Wild Marigold *Tagetes minuta*– An Essential Oil Crop



Tagetes minuta, commonly known as wild marigold is valued for its essential oil. It is an annual herb branched erect and grows 1-2 m tall. Due to increasing demand of tagetes oil in recent years, there has been an increasing interest in its cultivation. In India, this species finds habitat in western Himalaya between altitudes of 1000 to 2500 m. Himachal Pradesh, Jammu & Kashmir and Uttarakhand are the main growing regions, where it occurs in natural habitat as a weed in crop fields. In the current scenario animal menace in agriculture field, this crop is most suitable alternate crop for diversification in the kharif season. It can also be intercropped with maize crop.

CSIR-Institute of Himalayan Bioresource Technology, Palampur has developed an improved variety 'Him Gold' through selection approach using germplasm collected from Kangra, Mandi and Kullu districts of Himachal Pradesh. The selection was made for six years from the crop cultivation out of the selected seed population. About 95% homogeneous seed population was achieved with synchronized seed germination (within

10-15 days), flower bud initiation (Mid September) and physiological seed maturity (Mid October), when the seed sowing was done in June month for raising the crop in mid hills of Kangra valley, Himachal Pradesh.

The Institute has developed constituent oriented production technology package. Production of Tagetes oil was limited to temperate regions before the release of this technology. Agrotechnology has been developed for cultivation in hilly as well as plain region. A set of four package of practices has been standardized to augment the production of Tagetes oil under different farming situations in sub-tropical to temperature climate.

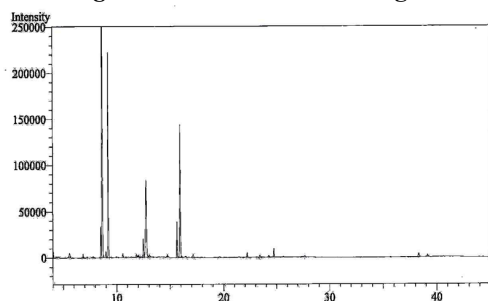
Better quality of essential oil is produced in moist temperate regions where nights are cool during growth and flowering season of the plant. Average temperature of 12°- 30°C during reproductive phase of the crop is desired for good quality essential oil. This soil prefers slightly acidic soil (pH 5.5 to 7.0). A minimum of 150 cm of rainfall, well spread over the season is required for raising successful crop.



Tagetes minuta at harvest stage



Tagetes minuta at early growth stage



GC Chromatogram of *Tagetes minuta* Oil

Essential oil yield: 0.25—0.5 %

Uses: Perfume formulation, Hair lotions, Flavouring tobacco and pan masala, Insecticidal, Antibacterial

Main Essential Oil Constituents : (Z)- β -Ocimene, Dihydrotagetone, (Z)- Tagetone, (E)-Tagetone, (Z)-Ocimenone, (E)-Ocimenone



Tagetes minuta intercropped with maize



Distillation of essential oil *T. minuta*



Tagetes oil

Tagetes oil finds a good market in perfumery houses and in flavor industry. The flower- oil and its absolute are used for compounding of high grade perfumes in flavour and food products. The presence of five important acyclic monoterpene ketones and a hydrocarbon in the oil are good source of base material for the synthesis of value added aroma chemicals. The oil also possesses

biological activity due to which it has immense scope in pharmaceutical industries. Net return of 1.5 to 2.0 lakhs per hectare can be earned by growing this crop and producing Tagetes oil.

Seeds of Him Gold are available on demand from CSIR-IHBT. Technical services are also offered for tagetes oil production to interested entrepreneurs.

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