

Geranium Cultivation: A Source of Medicinal Oil

Patil S. P.¹ and Chavan S. V.²

¹Assistant Professor, Department of Agricultural Engineering, RCSM, College of ABM, Sangli

²Assistant Professor, Department of Agricultural Engineering, Sharad College of Agriculture, Jainapur

SUMMARY

Geranium oil is known as the 'poor-man's rose' and is extracted from the leaves of various cultivars of Pelargonium species, which originate in Southern Africa and not from the genus Geranium (Lis-Balchin, 2002). Geranium plant has huge medicinal value and its essential oil works as an anti-inflammatory and anti-septic agent.

INTRODUCTION

Geranium is one of the aromatic and herbaceous bushy plants commercially grown for its essential oil. Plants can also be used for ornamental purposes. The plants that are grown for decorative purposes are called ornamental plants. Ornamental plants beautify the area around your office, home, etc. The stem of the geranium plant is cylindrical, woody at the base, pubescent, green when young, and turns brown with the age. The leaves of this plant are highly aromatic in nature. This plant is also known as rose geranium. It is mostly used in the cosmetic and perfume industry. Geraniol and citronellol are the main ingredients of the geranium. Pure geranium oil is almost a perfume cost of the oil is very high, commercial cultivation of geranium is very much profitable if it meets to its ideal condition.



Geranium cultivation

Uses Cosmetics, Perfumery

- Geranium is one of the important aromatic plants, yielding an essential oil which is highly prized for its very profound and strong rose like odour.
- The chief constituent of the oil are geraniol and citronellol.

- The pure geranium oil is almost a perfume by itself and blends well with all other perfumes.

Harvesting

Geranium is harvested about 4 months after transplanting, when there is sparse flowering, leaves start turning light green and exhibit a change from lemon-like odour to that of rose. Though the change in colour and odour is the criterion for harvesting, it requires careful observations and experience to decide the stage of harvesting. Leaf blades have maximum oil followed by petioles and woody parts have negligible oil. Terminal branches with 10-12 leaves are best for oil extraction. They are harvested with a sharp sickle and taken up for distillation immediately. The use of sharp sickle is important since it minimizes damage to the crop while harvesting. Harvesting is done manually in sunny weather in the morning hours. The crop after harvesting is maintained by hoeing, fertilizer application and irrigation as per schedule. This helps to put forth fresh shoots and reaches harvesting stage in four months. Thus, a total of three harvests a year may be obtained. The crop is a perennial but it is advisable to replant after two years since the wilt disease may dominate and kill many plants making it uneconomical to maintain.

Yield

The quality and yield of oil will be better if the crop is harvested at appropriate maturity. In large-scale distillation, the yield of oil is 0.08%. Occasionally, a yield of 0.1% may be obtained. The yield of fresh herbage per hectare per year from all the three harvests is about 30 tones, which on distillation yields about 24 kg of oil. In Bangalore plains, however, yields are around 40 tons of herbage/ha/year from which 40 kg oil is produced. The quality of essential oil produced in the plains is quite high.

Oil Contents

The oil of geranium is a clear liquid with light-yellow to light-brown or green color. It has a strong, heavy rose-like odour with a minty top note. The chief constituents of the oil of geranium are geraniol and 1- citronellol, the quantities of which vary in proportion, depending upon the origin. Esters of these alcohols as acetates, formates and tiglates are also present. Other important constituents of geranium oil are isomenthone, linalool, -turpineol, phenyl ethyl alcohol, 3-hexene-1-ol and rose oxides (traces)

Geranium Varieties

Algerian or Tunisian: It is a slender plant with dark pink colored flowers. It is cultivated in Nilgiris. This variety yields 50-60% more oil than the reunion type.

Reunion or Bourbon: It is grown in Nilgiris and Annamalai hills. The plant is sturdy with light pink flowers and suited for wet conditions. The oil content is higher during summer season and the terminal 6-10 leaves contain more oil than the middle and basal portion.

Sel-8 (Reunion Type): It is a variety released by IIHR, Bangalore.

Hemanthi: This variety is released by CIMAP, Lucknow for cultivation in the plains of north India. It is same as Algerian type rich in citronellol.

Bipuli: This variety is released by CIMAP, Lucknow. It is the same as Bourbon type equally rich in both geraniol and citronellol.

Geranium Post Harvest Technology

Distillation process for Oil extraction:

Geranium is distilled soon after it is harvested. The distillation equipment consists of a boiler, distillation stills, condensers and receivers. Distillation still is generally made up of mild steel. It has a perforated metal sheet

at the bottom to support the herbage, which is loaded into the still for distillation. Loading and unloading can be mechanized with the help of an overhead chain-pulley block. The lid of the still can be swung aside during loading and unloading. It is important that the herbage should be evenly packed inside the still, otherwise steam channels may form during distillation and result in poor yield. The condenser, which cools the hot vapors received from the distillation still, consists of many tubes made up of copper or stainless steel and mounted inside a jacket. The condenser has inlets and outlets for the circulation of cooling water and for entry and exit of hot vapours and condensate. The condensate flowing out of the condenser drops into the receiver. The oil, being insoluble and lighter than water floats on the top in the receiver and the water gets drained out. The oil can be drawn off separately at the end of the distillation. The receiver is fabricated out of stainless steel and consists preferably of two compartments, so that any oil escaping from one compartment can be retained in the adjoining compartment, although this rarely happens. Distillation is carried out at atmospheric pressure and each distillation takes about 2-3 hours in addition to the time required for loading and unloading.

CONCLUSION

The production of Geranium has got boost under the Aroma mission. Geranium is a highly adaptable, drought tolerant, perennial aromatic herb cultivated under varied Agro climatic conditions in India. Geranium oil obtained by steam distilling the fresh biomass has a variety of uses in high grade perfumery.

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