MARUMEGH

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KING OF BITTER: KALMEGH

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Introduction

To improve the health of human beings medicinal plants have been used since ancient times to cure and heal diseases. India exports medicinal and herbal materials values nearly 600 crores annually. Among various medicinal plants, kalmegh is very popular in the country as well as in abroad and has great demand. It is a most useful medicinal plants which gives more advantageto weaker section of rural areas and it helps to generate income. The kalmegh get 17th position among 32 prioritized medicinal plant list, purposed by Indian National Medicinal Plants Board. It has an important place in India pharmacopoeia and is being conspicuously used in 26 ayurvedic formulations.

Morphology

Kalmegh is a bitter annual and also maintain as perennial plant. Height of kalmegh herb is varies between 0.5 m to 1m. It is an erect growing herb, upper part of stem quadrangular while the lower part nearly rounded. It has lot of branches and short petioled leaves attach in opposite direction. Inflorescence is raceme. Roots are simple woody fusiform and require moist habitat. Fruit capsule varies in shape either it is linear, oblong or elliptic. Shape of seeds are subquadrate and colour of seeds are brownish to creamy yellow. Flowering and fruiting occurs in October – December (North India).

Distribution

Kalmegh is native to Taiwan, China, India and Sri Lanka. It is commonly found in the tropical and subtropical Asia, Southeast Asia, and some other countries. In India it is widely distributed throughout plains from Uttar Pradesh to Assam, Madhya Pradesh, Tamil Nadu and Kerala.

Taxonomy

Andrographis paniculata belonging to the family Acanthaceae and order personales. Andrographis genus consists of 40 species and about 19 species are grown in India, out of which *Andrographis paniculata* and *Andrographis alata* have medicinal properties. Andrographis Paniculata have gametophytic 25 and Sporophytic 50 chromosomes.

Chemical Composition

Plant leaves have bitter diterpenoid lactones espdeoxyandro graphaloid,andrographaloid,ncoandrographaloids and Kalmeghin (upto 2.5%).Diterpene dimmers and flavonoids are isolate from the roots of plant. The main active compound is considered to be andrographaloid and Andrographis extract.The leaves contain maximum active principle content while seed contains lowest amount (Sharma *et al*., 1992).

Uses

- The leaves and aerial parts of plant are used in treatment of fever, liver disease, diabetes, snake bite, jaundice, dysentery, chronic malaria and sore throat (Madav *et al*., 1995).
- It promotes digestion, kills intestinal worms, protect skin from pimples, reduces swelling and cuts down exudation from capillaries, reduce blood sugar level and aids bowel elimination.
- The plant is acrid, cooling, laxative, antipyretic, antiperiodic, anti-inflammatory, expectorant, sudorific, anthelmintic, digestive and stomachic (Saxena *et al*., 2000).
- The plant is often used as a substitute for Chirayita (*Swertiachirayita*).

Climate and Soil

The plant grown well in tropical and subtropical regions of India. Plant require hot and humid conditions with ample sunshine. It is a hardy plant species, it can be grown in medium fertile sandy loam to clay-loam soils. It can withstand in partial shade condition for few hours but it giveshigh production in open field condition. It can be cultivated on shady wastelands also.

Propagation

Propagation of kalmegh done by seed as well as vegetative means. Each node of stem is capable of producing enough roots, layering is successful in kalmegh. Commonly propagation is done by seeds.

Nursery Raising and Planting

For raising crop in one hectare three beds of 10x2 m size should be tilled, pulverized and leveled during the month of May. Good amount of organic manure use in nursery is advised for raising healthy seedling. Seed rate for a hectare area 650-750 gm. At the time of sowing, seeds covered with very thin layer of soil and compost mixture. After sowing beds should be covered with suitable mulch and irrigated regularly till seedlings emerge. To avoid etiolating of seedlings mulch should be remove immediately after germination. After 10-15 days regular flood irrigation can be given till it becomes ready for transplanting.

Transplanting

Six weeks old seedlings are planted in second fortnight of June at a row and plant spacing of 45 to 60 cm and 30 to 45 cm respectively in field. Direct sown crop is broadcasted thinly and has a seed rate of 1.5 kg/ha. Nursery raising is preferred for high production.

Weeding

Kalmegh is an herbaceous plant it require two weeding for better establishment at 20 and 60 days after transplanting. After establishment, crop grows well during monsoon and does not face any competition from weed.

Manures and pesticide

The medicinal plants have to be grown without chemical fertilizers and use of pesticides. Organic manures like, Farm Yard Manure (FYM), Vermi-Compost, Green Manure etc. may be used as per requirement of the species. To prevent diseases, bio-pesticides could be prepared (either single or mixture) from Neem (kernel, seeds& leaves), Chitrakmool, Dhatura, Cow's urine etc.

Irrigation

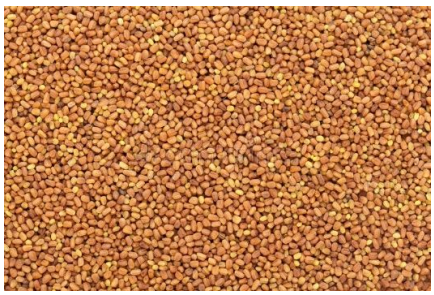
Irrigation immediate after transplanting is essential. Fairly rainfall distributed during monsoon is sufficient to raise annual crop in Northern states. But prior to rain 2-3 irrigations are required in perineal crop. Irrigation during autumn does not show effective response on biomass yield as by that time plant is inreproductive phase.

Harvesting

Crop become harvestable 120 days after sowing. Harvesting of plant done when the plants are in blooming stage. Active principle andrographolide is high in leaves at blooming time. At the time of blooming crop should be uprooted. After uprooting plants dried in sun for two days and afterwards in the shade. Well dried planting material should be packed in laminated gunny bags, lest it absorbs moisture. Dried material store in airy, moisture free and dark place.

Small lot of healthy plants should be left in the field for seed production. At the time of maturity of fruits, it should be picked up and dried for some time in sun. After drying seeds are collected. Seeds are also kept in open sun for complete drying. After drying seeds are stored in air-tight containers for next sowing.

Flowers



Seeds

Dried material

Yield

A well maintained crop grown during monsoon season yields 3.5 to 4.0 tons of dried herb per hectare area.

References

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