

Fresh, dry herbage yield and oil content of mint (*Mentha* spp.) under different shade conditions

M. PALANIKUMAR AND P.C. JESSYKUTTY

See end of article for authors' affiliations

Correspondence to :
M. Palanikumar
Department of Plantation crops and Spices,
College of Agriculture,
Kerala Agricultural University,
Vellayani,
THIRUVANANTHAPURAM
(KERALA) INDIA

Accepted : January, 2007

ABSTRACT

A field experiment was conducted at the Instructional Farm, College of Agriculture, Vellayani, Thiruvananthapuram, Kerala during the period from 2003-2004 to evaluate fifteen accessions of Japanese mint (*Mentha arvensis* L.), pepper mint (*Mentha piperita* L.) and spear mint (*Mentha spicata* L.). Herbage yield and oil content of mint (*Mentha* spp.) under each shade condition (open, 25 and 50 per cent), among the three species peppermint recorded the highest fresh herbage yield (5.10, 10.10, and 3.81 t ha⁻¹ respectively) and dry herbage yield (0.59, 0.99, 0.54 t ha⁻¹ respectively). Among the three different shades, pepper mint recorded highest fresh herbage yield (6.72 t ha⁻¹), dry herbage yield (0.72 t ha⁻¹) and oil content (0.24 per cent) under 25 per cent shade condition 180 days after planting. Among the three shades, mild shade condition (25 per cent) is ideal for mint cultivation. S₂A₄ recorded highest fresh and dry herbage yield under 25 per cent shade condition (12.25 and 1.33 t ha⁻¹ respectively).

Key words: Shade, Fresh herbage yield, Dry herbage yield, Oil content

Mint is an important spice and medicinal herb. India is the largest producer and exporter of mint oil and contributes about 80 per cent of total world production. Mint is cultivated in USA, South European countries and Latin American countries. In India, at present, Japanese mint occupies about 1.34 lakh hectares with an annual production of 12,000 tonnes and export of about 8000 tonnes of mint oil (Kumar *et al.*, 2004). It is mainly cultivated in the states of Punjab, Uttar Pradesh, Haryana and some parts of Tamilnadu. Mint is a crop of temperate and sub temperate climate but in India, it is cultivated in humid tropics. Detailed study of fresh and dry herbage yield under different shade levels was not under taken. Hence, the present study was carried out to find the influence of different shade levels of fresh and dry herbage yield of Mint (*Mentha* spp.).

MATERIALS AND METHODS

The field experiment was conducted at the Instructional Farm, College of Agriculture, Vellayani, Thiruvananthapuram, Kerala during 2003-2004. The experiment was laid out in a Factorial Randomized Block Design (FRBD) with three replications. Suckers and stem cuttings of each of (S₁) Japanese mint (*Mentha arvensis* L.), (S₂) pepper mint (*Mentha piperita* L.) and (S₃) spear mint (*Mentha spicata* L.) accessions were rooted in the polythene bags filled with potting mixture to get uniform planting materials. Details of fifteen accessions of mint

www.hindagrihorticulturalsociety.com

(*Mentha* spp.) collected for the study are presented in Table 1. The land was thoroughly prepared by digging and leveling. Ridges and furrows were made at 45 cm apart. Rooted cuttings were planted at 10 cm spacing along the ridges. High Density Poly Ethylene (HDPE) shade nets of appropriate mesh size were used for providing the required shade requirement of 25 per cent and 50 per cent. The three species were also grown in the adjacent open area. Plants were uprooted and dried to constant weight at 60-80°C in a hot air oven. Dry weight was recorded after drying the sample in a hot air oven at a temperature of 70-80°C till constant weight was obtained. Observations on fresh weight and dry matter production of the plant was measured at the time of harvesting (180 days after planting) and computed in tonnes ha⁻¹. Oil content was measured at the time of harvesting (180 days after planting). The oil content was estimated by Clevenger distillation method AOAC (1975) and expressed as percentage (V/W) on dry weight basis.

RESULTS AND DISCUSSION

Performance of different mint species in each shade condition

Among the three species evaluated under open condition, *Mentha piperita* (S₂) produced the highest fresh herbage yield. Other two species produced same yield under open condition and their herbage yield accounted for about 73 per cent of that of *Mentha piperita* (S₂) (Table 2). Similar results were reported by Benvenuti *et al.* (1994). Under mild shade condition (25 per cent) also the highest fresh yield was for *Mentha*