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A Note on Rooting of Planting Material of Japanese Mint

Japanese mint (Mentha arvensis L.) was introduced in India in 1952. Commercial cultivation of this crop is of recent origin. Mint cultivation is largely confined to North India because of the prevailing of Sub-tropical and temperate climatic conditions. The green herb is rich in Menthol, an aromatic chemical used in the pharmaceutical preparations, food flavoring and cosmetic Industries. This crop is propagated vegetatively by its underground as well as aerial plant parts. One of the advantages claimed for asexual propagation is the true to type reproduction of genetic architecture of the parent plant (Hartmann and Kester, 1986). Among the several methods of vegetative propagation, the rooted stem cutting is probably the most popular because, large number of plants can be raised in a short period. Besides it is easiest, simplest and least expensive method of propagation.

Japanese mint plant consists of shoot having main stem; with big leaves and flowers, runners; crawling succulent stems with small leaves and underground rhizomes (also reported to stolens/ suckers in India), the three propagules for this crop. In North India, farmers commonly use rhizomes for raising commercial crop, probably due to the availability of rhizomes which remain viable for a few days (3-5 days), suffer very little damage during transportation and ease With which planting can be accomplished. However, good quality of rhizomes are produced in sufficient quantity mainly during winter season. Therefore, farmers intending to propagate during other seasons necessarily depend on stem and runner cuttings for raising the crop. However, no report is available on Japanese mint about the effect of various planting materials on rooting under semi-arid climatic conditions. Hence, this study was under taken at Department of Horticulture, Regional Research Station Raichur. Three propagules Viz., stem, runner and rhizome cuttings were separated just before planting from three months old plants. This constituted the planting materials for the study. The selected stem cuttings (preferably growing tip) were 6-8 cm long bearing 2-4 pair of leaves per cutting, the selected runners, were 6-8 cm long bearing 2-3 pair of small leaves and rhizomes, were 4-5 cm in length bearing 1-2 nodes per cutting. There were 50 cuttings in each treatment. The experiment was laidout in Randomized Block Design with seven replications. The materials were planted in polythene bags (5x20 cm size) filled with soil sand and FYM (1:1:1 ratio). All the recommended cultural practices were adopted for raising the healthy crop. Planting was done during first week of August 1999.

Five days after planting, observations on number of days taken for sprouting and 15 days after planting (DAP), percentage success cutting were recorded. Total number of roots, fresh leaves and root length (longest and shortest) per cutting were recorded at 15 and 30 DAP.

A perusal of the table indicated that, planting materials differed significantly with respect to number of days taken for sprouting, total number of roots, longest root (at 15 and 30 DAP) number of fresh leaves and shortest root at 30 DAP. Runner cuttings sprouted earlier (5.86 days) followed by stem cuttings (6.86days) and rhizome cuttings (8.57days). Less number of days taken by the runners for sprouting may be attributed to the presence of small, active and

thick leaves which are prime organs for photosynthesis and also source of plant hormones required for rooting and early sprouting of plants. While, stem cuttings with big and thin leaves having more leaf area and evapotranspiration were consequently taken more days for sprouting. But rhizome cuttings taken more days for sprouting because of miniature leaves.

Runner cuttings registered highest percentage of success (98.29) followed by stem cuttings (96.57). The minimum percentage of success was recorded with rhizome cuttings (94.71). Stem cuttings recorded significantly highest total number of roots at 30 DAP (31.14). Enhanced rooting in the presence of leaves were also reported by Vadivel *et al.* (1980) and Kattimani *et al.* (1998). Significantly longest root was obtained in runner cuttings both at 15 and 30 DAP. Similarly shortest roots were also more in runner cuttings compared to stem and rhizome cuttings. Similar observation was also made by Kumar *et al.*(1980) in Bergamot mint.

Runner cutting proved to be the best planting material for *Mentha arvensis* because of early sprouting, highest total number of leaves, sufficient longest and shortest roots. The runners as planting material in Japanese mint offers the following advantages. 1) They remain viable for longer time than stem cuttings. 2) They can be planted either vertically like stem cutting or horizontally in furrows like rhizomes. 3) They can be easily packed and transported with little damage during transportation. 4) Using runners as planting material ensures utilization of these plant parts which otherwise are generally not used for extraction of essential oil. 5) It secures entire shoot biomass for oil extractions. If stem cuttings are used that much

Table. Rooting of different propagating materials in Japanese mint *Mentha arvensis* L. cv. Shivalik

Propagating Material	Number of days taken for sprouting	Percentage of success	Total Number of roots		Total Number of Fresh leaves		Root length (cm)			
							Longest		Shortest	
			15DAP	30DAP	15DAP	30DAP	15DAP	30DAP	15DAP	30DAP
Stem cuttings	6.86	96.57	11.29	26.43	6.14	15.43	4.70	11.98	0.86	2.61
Runner cuttings	2.86	98.29	9.00	31.14	9.57	20.42	5.62	14.22	1.17	3.61
Rhizome cuttings	8.57	94.71	3.71	6.14	5.29	11.59	11.57	7.77	0.41	1.09
S.Em±	0.57	1.30	1.08	1.92	1.45	1.44	0.47	0.83	0.31	0.23
C.D. at 5%	1.74	NS	3.33	5.91	NS	4.44	1.03	1.80	NS	0.72

DAP: Days after planting

of biomass would be lost for oil extraction, consequently oil yield would be less per unit area. The study indicated that the Japanese mint can be propagated quickly and easily by runner cuttings. This method of propagation can be used for commercial cultivation.

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