



Evaluation of sweet basil (*Ocimum basilicum*) genotypes

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ABSTRACT

An field experiments were conducted at Department of Horticulture, Agricultural College and Research Institute, Madurai during January 2007 and January 2008 with eighteen genotypes to identify higher herbage and essential oil yielding genotypes. The results of the experiment reveals that among 18 genotypes, genotype No EC338776 recorded highest value for plant height (109.67cm and 110cm), primary branches (52 and 58 nos/plant), total number of branches (190 and 209 nos/plant), number of leaves (939 and 998 nos/plant), leaf area index (19.85, 22.35), leaf weight (483 and 425g/plant), soft stem weight (415 and 425g/plant), total fresh herbage yield (898 and 850g/plant). The essential oil content was higher in the genotypes EC 336833 and EC 112548 (0.70 and 0.6 per cent) whereas the essential oil yields per plant (5.39 and 4.25 ml) and per hectare (399 l and 267 l) was higher in EC338776. It was found that, the genotype EC338776 was best suited compared with other genotypes.

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Krishnamoorthy, V. (2010). Evaluation of sweet basil (*Ocimum basilicum*) genotypes, *Asian J. Hort.*, 5 (2) : 411-415.

Key words : Sweet basil, Genotypes, Herbage yield and Essential oil

The genus *Ocimum* belonging to the family Lamiaceae is an extremely versatile group consisting 65 recognized species. It has several chemotypes *i.e.* morphologically indistinguishable plants of the same *Ocimum* species differing in their chemical constituents. *O. basilicum* ($2n = 48$) is an herbaceous annual popularly known as Indian or sweet basil. It occurs all over India. The plants, on steam distillation, yield light yellow colour essential oil, possessing a pleasant odour characteristic of the plant, with an appreciable note of anise. The essential oil has methyl chavicol and linalool as major constituents and terpenes as minor constituents. The essential oils of cultivar CM-Saumya and Vikarsudha containing the content of methyl chavicol 62.5 % and 78.7%, respectively were reported (Dwivedi *et al.*, 1999). Methyl chavicol, an isomer of anethole, is an aroma isolate with reminiscent of anise like odour. It is used extensively in cosmetic products and in flavouring of mouth fresheners, dental preparations, *etc.* Indian basil is an important low cost source of this aroma isolate. Current Indian production of *O. basilicum* essential oil containing methyl chavicol as principal constituent is about 350t (Lawrence, 1992). A bulk of this quantity is used for production of anethole, which is in large demand. To meet the short fall in demand of anethole, India imports

(Pimpinella anisum L.) essential oil on a regular basis. India import of anise oil was 165t amounting Rs.10.5 crores during 2002-03. Methyl eugenol is a high value aroma chemical used in cosmetic products and men's colognes. It is also used as a flavouring agent in jellies, baked foods, non-alcoholic beverages, chewing gum, candy, pudding, relish and ice cream (Maheswari, 1995). As a flavouring agent it has spicy, ginger like undertones and its odour is musty- tea like warm and mildly spicy. The cultivation of *O. basilicum* is being gaining importance among the farmers as many essential oil extraction units were established in Southern parts of Tamil Nadu. Presently the herbage is being collected from the forest and used for distillation by the industries. The growers are using the locally available genotypes for cultivation. The local types are poor in herbage and essential oil yield. Hence, an attempt is initiated for identifying a genotype for higher herbage and essential oil which will be very much useful for commercial cultivation

MATERIALS AND METHODS

The experiment was conducted at Department of Horticulture, Agricultural College and Research Institute, Madurai, Tamil Nadu Agricultural University Tamil Nadu