The Asian Journal of Horticulture; Vol. 6 No. 1; (June, 2011) : 85-88

Received : December, 2010; Accepted : February, 2011

Research Paper

Comparison of orange fruited and traditional red fruited tomato cultivars with respect to biochemical composition and yield

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ABSTRACT

The present research work was undertaken to evaluate recently developed orange fruited tomato cultivars (eight) along with traditional red fruited cultivars (three) during *Rabi* season of 2006 for horticultural traits and yield potential in randomized block design with three replications. The data revealed that, the orange and red fruited tomato cultivars were not much differed from each other except for number of seeds and locules per fruit, fruit weight and yield which were found lower in orange fruited cultivars than traditional red fruited one. The biochemical analysis of fresh fruit revealed that the noticeable differences were not observed among orange and traditional red fruited cultivars except beta carotene, lycopene and ascorbic acid content where orange fruited cultivars were found to be rich source for vitamin A and C content. The significantly highest mean fruit yield was noticed in traditional red fruited cultivars (511.49 q /ha) than the orange fruited one (392.92 q/ ha).

Garande, V.K. and Patil, R.S. (2011). Comparison of orange fruited and traditional red fruited tomato cultivars with respect to biochemical composition and yield, *Asian J. Hort.*, **6** (1) : 85-88.

Key words : Orange and traditional red fruited tomato cultivars, Biochemical composition, Yield

The cultivated tomato (*Lycopersicon esculentum* Mill.) is one of the versatile and widely consumed vegetables in fresh, cooked and processed forms throughout the world. The tomato fruit is also rich in vitamins like as A, B and C, minerals (calcium, sodium, magnesium, manganese, potassium, iron, phosphorus, boron and zinc) and carotenoid pigments like lycopene and beta carotene, which has antioxidant property and thus plays vital role in cancer therapy (Kalloo, 1991). Therefore, efforts are needed in developing countries to incorporate beta carotene into crops like tomato converting into cell factory for antioxidant carotenoids which are presently available only through chemical synthesis (Anonymous, 2004). The extensive research work is being carried out in the country regarding development of new tomato varieties with resistance to pests and diseases and high yield potential. However, not much systematic research work has been reported so far to improve the nutritional value of tomato from the point of view of beta carotene content. The promising lines of orange fruited tomato through back crossing of somatic hybrids were developed at MPKV, Rahuri. These hybrids are needed to be evaluated for biochemical composition and yield. Therefore, the present investigation was carried to study the comparison of orange and traditional red fruited tomato cultivars with respect to biochemical composition and yield during *Rabi* season under Rahuri conditions.

MATERIALS AND METHODS

The present investigation was undertaken in the Department of Horticulture, Mahatma Phule Krishi Vidyapeeth, Rahuri during *Rabi* season of 2006. The field experiment was laid out in Randomized Block Design (RBD) with thirteen genotypes consisting of eight orange fruited and five traditional red fruited tomato cultivars in three replications. The recommended packages of practices were followed for better production of yields. The observations on physical parameters such as mean polar diameter (cm), radial diameter (cm), fruit shape index, radial fruit firmness (kg/cm^2), fruit pericarp thickness (cm), mean number of locules and seeds per fruit, juice content (%), yield and yield contributing characters such as average fruit weight (g) and fruit yield (q/ ha) were recorded. The biochemical constituents such as total soluble solids (^{0}B), acidity (%), total sugars (%, reducing and non-reducing), ascorbic acid (mg/100g), lycopene (mg/100g) and beta carotene (mg/100g) were determined by employing the standard analytical procedures given by AOAC (1990). The data generated through this investigation were analyzed by the methods