

EVALUATION OF SOME QUALITY CHARACTERS OF FIVE TOMATO VARIETIES (*Lycopersicon esculentum*) GROWN IN SANDY REGOSOLS OF BATTICALOA DISTRICT

S.Sutharsan, V.Arulnandhy, T Mahendran
*Department of Agronomy, Faculty of Agriculture,
Eastern University, Sri Lanka*

ABSTRACT

Five varieties of tomatoes were grown in sandy regosols to evaluate some of their quality characters viz. acidity and contents of vitamin C and sugar at different stages of fruit development such as green, green orange and ripening stages. The varieties KC 1, Roma and Caribo Inra showed progressive increase in sugar content from green to green orange to ripening stage. However, the variety Marglobe expressed a decreasing trend on the same. The increasing trend of acidity from green to ripening was observed in KC 1, Roma and Caribo Inra but vice-versa in the varieties of T 146 and Marglobe. The vitamin C content of variety Marglobe was found to be higher than that of the variety T 146 at all three stages of fruit development.

Key words: Acidity, Sugar content, Vitamin C, Tomato varieties.

INTRODUCTION

Tomato is an important 'protective food' because of its nutritive value. It is the world's largest vegetable crop after potato and sweet potato. It contains lycopene and β -carotene pigments. A recent long term medical studies indicate that individuals who regularly consume fresh tomato or processed tomato products are less likely to develop certain forms of cancer (Benton Jones,

Quality characters of tomato varieties in sandy regosol

1998). Tomatoes are used for soup, salad, pickles, ketchups, puree, sauces and in many other ways.

In Asian countries, tomato is ranked first overall; first in Taiwan, Philippine and Thailand; second in Japan, Indonesia and Bangladesh; third in Sri Lanka (after chillies and onions) and Nepal (Peter, 1976). In year 1998, 86.3 million metric tons of tomatoes were produced in an area of 3.094 million hectare around the world (Tomato crop germplasm committee, 2000). In year 2000 total production, extent and yield of tomato in Sri Lanka was 43,496 mt, 5,787 ha and 7.56 mt/ha respectively (Department of Census and Statistics, 2001).

The nutritive value varies in different varieties and also depends on the environment. Night and day temperatures are important factors limiting tomato fruit set.

MATERIALS AND METHODS

A pot experiment was conducted to evaluate the quality characters such as acidity, sugar content and Vitamin C content of five tomato varieties viz. KC 1, Roma, T 146, Marglobe and Caribo Inra during late Maha 2002 at the Agronomy farm of Eastern University, Vantharumoolai located in the eastern region of Sri Lanka, belonging to the agro-ecological region of DL₂. All the varieties were grown under the same management conditions for this study.

The fruits collected at green, green orange and ripening stages were used to determine acidity, sugar content and vitamin C content, using the standard procedures adopted by AOAC (1993).

RESULTS AND DISCUSSION

The varieties of KC-1, T 146, ROMA and Caribo Inra showed a progressive increase in sugar content from green (G) to green orange (GO) to ripening (R) stages. However, the variety Marglobe expressed a decreasing trend on the same, at the same stages of maturity. In addition, the ANOVA showed that the sugar content of the tomato varieties significantly differed at different stages at $p < 0.05$ (Fig. 1). Tomato varieties KC 1 and Caribo Inra showed the highest content of sugar and acidity at the ripening stage (Fig. 1 and Fig. 2).

The increasing pattern of acidity from green to ripening was observed in KC-1, Roma and Caribo Inra but vice-versa in the varieties of T146 and Marglobe. The difference in acidity was highly significant among varieties (Fig. 2).

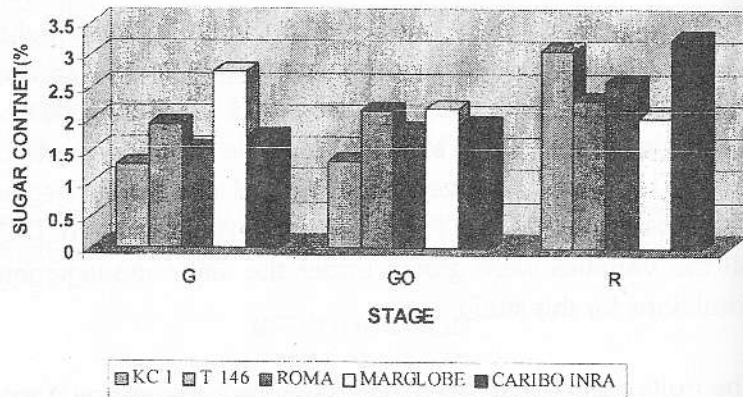


Fig 1. Sugar content of tomatoes at different stages

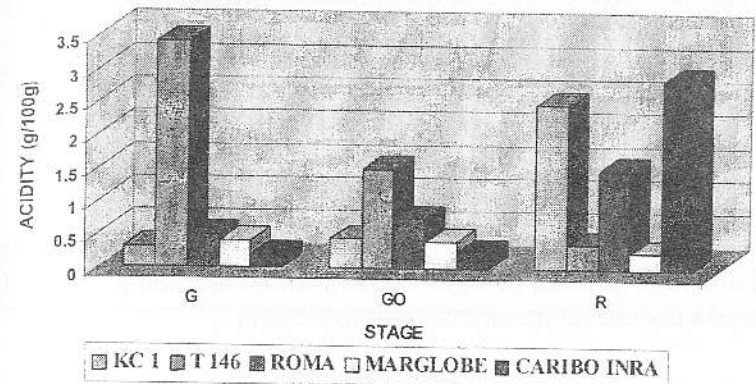


Fig 2. Acidity of tomatoes at different stages

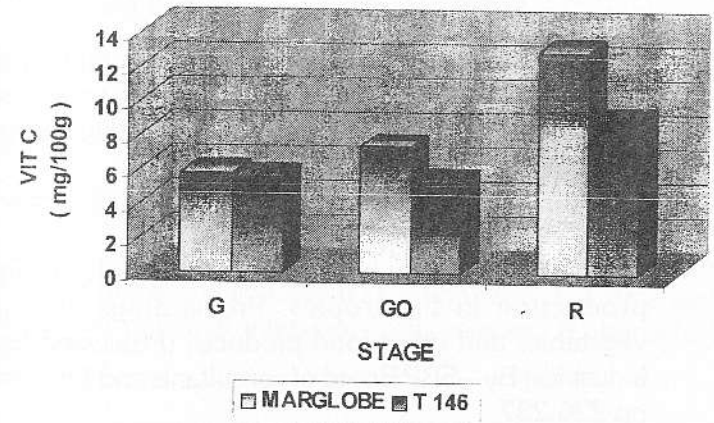


Fig 3. Vitamin C content at different stages

Comparatively the vitamin C content of the variety Marglobe was higher than in the variety T146 at different harvesting stages. MARGLOBE and T 146 significantly differed in this aspect at ripening stage (Fig. 3).

In addition, Pearson correlation analysis revealed that the acidity and the sugar content of the fruit were positively correlated at three different stages of harvest. The correlation between the above parameters were highly significant at the ripening stage of tomato fruits.

CONCLUSIONS

Based on this study it appears that the tomatoes with high acidity have high amount of sugar content which facilitates to identify and select suitable varieties for processing

REFERENCES

1. AOAC (1993). Official method of analysis, Association of official Analytical Chemists, Washington. USA. 15th edition. 8 – 14.
2. Benton Jones, Journal of tomato plant culture in the field, green house and home garden, tomato technology book from C.H.I.P.S., Culinary and hospitality industry publications Services.
3. Department of census and statistics (2001), Department of Agriculture.
4. Peter, H.C.(1976). Improving small-scale tomato production in the tropics. Proceedings of fruits vegetables and other food products. (Processed food industries) By – SBP Board of consultants and Engineers pp 226-237.
5. Tomato germplasm committee report, 2000. Florida, America.