Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 8, Issue, 09, pp.38333-38334, September, 2016

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

EFFECT OF PRETREATMENTS AND DRYING METHODS ON QUALITY PARAMETERS OF DRIED TOMATO SLICES

[1,*]Pokharkar K. K., [2]Delvadia D. V., [1]Jadhav P. B. and [1]Bhor P. B.

[1]Scholar, Dept. of Horticulture, JAU, Junagadh, Gujrat-362 001
[2]Professor, Dept. of Horticulture, JAU, Junagadh, Gujarat-362001

ARTICLE INFO

Article History:
Received 17th June, 2016
Received in revised form
28th July, 2016
Accepted 28th August, 2016
Published online 30th September, 2016

Key words:

Tomato Slices,
Drying Methods,
Blanching,
Peeling, etc.,

ABSTRACT

The present investigation entitled "Effect of pretreatments and drying methods on quality of tomato slices" was carried out at Post Graduate Laboratory Department of Horticulture, College of Agriculture, Junagadh Agricultural University, Junagadh in factorial completely randomized design with three replications and consists different levels of pre-treatment viz., P_1 (Peeled by hot water dip blanching), P_2 (Peeled by hot brine dip blanching), P_3 (Unpeeled, hot water blanching), P_4 (Unpeeled, hot brine blanching) and P_5 (Control-Unpeeled, Unblanched) and two drying methods viz., D_1 (Tray drying) and D_2 (Sun drying). The results of sensory evaluation exhibited that on 1st, 40th and 60th day of storage, P_2D_1 secured highest score for sensory characteristics *i.e.* 9, 7.5 and 6.1, respectively, on 20th and 80th day of storage, P_2D_1 and P_4D_1 recorded highest average score for sensory characteristics *i.e.* 8.1 and 4.6, respectively. Therefore treatment P_2D_1 can be suggested to the farmers or post-harvest technocrats for commercial based preparation of tomato slices.

Citation: Pokharkar K. K., Delvadia D. V.,Jadhav P. B. and Bhor P. B., 2016. "Effect of pretreatments and drying methods on quality parameters of dried tomato slices" *International Journal of Current Research*, 8, (09), 38332-38334.

INTRODUCTION

The commercial tomato belongs to a species most frequently referred to as *Lycopersiconesculentum* Mill, a Solanaceous crop. Compared to many other vegetable crops tomato, a native of Central America and South America, has a shorter history of about 400 years (Saravaiya *et al.,* 2014). Tomato is one of the most popular vegetable and ranks first. The fruit is available in the market almost round the year. It is one of the most popular salad vegetables in raw taste and is made into soups, conserves, pickles, ketchups, sauces and other products. It is served as raw, baked, stewed, fried and as sauce with various other foods. It is recognized as one of the most important "Protective food" both because of its special nutritive value and also because of its wide production (Choudhary, 2001). It is a perishable crop and cannot be stored safely in normal condition for a long time. Tomato has limited shelf life and presently about 30-40% of the tomato is estimated to be lost during post-harvest operations including handling and storage like decay, over ripening, mechanical injury, weight losses etc.

****Corresponding author: Pokharkar K. K.,***
Scholar, Dept. of Horticulture, JAU, Junagadh, Gujrat-362 001

About 10% of the total tomatoes are being processed and remaining is consumed as fresh vegetables. Fast emerging of food processing industry is changing the lifestyle of population. At least 30-40% of production of fruits and vegetables in country is lost due to improper post-harvest handling. The post-harvest losses estimated to tune of Rs. 23,000 crores per annum. This huge post-harvest loss of valuable horticultural commodities can be checked successfully, if they are processed into different value added products. Processing of tomato into market demanded products becomes very necessary to minimize the glut in the market during its peak season of production. It is treated as a valuable raw material for the preparation of a very wide range of processed products. The demand by the processing industries of the world for tomatoes continues at a high level.

MATERIALS AND METHODS

For this experimentation, a fully ripe, oval shaped and uniform sized tomato fruits of cv. GT-1 were selected. Unripe, diseased, damaged and off type fruits were strictly discarded. Well matured, fully developed and red colored tomato fruits were selected and washed thoroughly with fresh tap water and peeled manually after giving the hot brine (2.5%), hot water (100°C) and blanching pre-treatments to the fruits for 30

second. The slices of 1 cm thickness with sharp stainless steel knives were prepared and then it was kept on a stainless steel sieve for a few minutes for draining of excess juice and then spread it uniformly on tray for drying in sun and cabinet tray drier. Trays with ripe tomato slices were loaded in cabinet tray drier and temperature of 60°C for initial 3 hours was maintained. After 3 hours, temperature was reduced to 40°C, to minimize the deterioration of quality caused due to high temperature. Trays with raw tomato slices were kept under sun from 9.00 a.m. to 5.00 p.m. and were covered with the double layer muslin cloth to avoid the direct heat to the slices. After drying of slices, it was packed in 200 guage polythene bags and stored at ambient storage in Laboratory.

During the storage, the observations of the dried slices were recorded for its changes in chemical properties at every 20 days interval. Soup as a processed product was prepared from the stored dried slices at every 20 days interval and evaluated for it's sensory attributes by appointing the five-member expert panel upto the spoilage occurred. The experimental data were analyzed statistically according to the analysis of variance technique as suggested by Panse and Sukhatme (1985).

Treatment combinations

The details of the pre-treatments, drying methods adopted and its combinations are given below.

Pre-treatments

Factor A (Pretreatments)

- P_1 – Peeled by hot water dip blanching
- P_2 – Peeled by hot brine dip blanching
- P_3 – Unpeeled, hot water blanching
- P_4 – Unpeeled, hot brine blanching
- P_5 – Control (Unpeeled, Unblanched)

Factor B (Drying methods)

- D_1 – Tray drying
- D_2 – Sun drying

Treatment combinations

P_1D_1	Peeled by hot water dip blanching + Tray drying
P_2D_1	Peeled by hot brine dip blanching + Tray drying
P_3D_1	Unpeeled, hot water blanching + Tray drying
P_4D_1	Unpeeled, hot brine blanching + Tray drying
P_5D_1	Control (Unpeeled, Unblanched) + Tray drying
P_1D_2	Peeled by hot water dip blanching + Sun drying
P_2D_2	Peeled by hot brine dip blanching + Sun drying
P_3D_2	Unpeeled, hot water blanching + Sun drying
P_4D_2	Unpeeled, hot brine blanching + Sun drying
P_5D_2	Control (Unpeeled, Unblanched) + Sun drying

RESULTS AND DISCUSSION

On 1st day of storage (Fig. 1), P_2D_1 secured highest score *i. e.* 9 for colour, flavour and taste, while minimum score was registered in P_5D_2 which was 7.1.
On 20th day of storage(Fig. 2), P_2D_1 and P_4D_1 recorded highest average score for sensory characteristics *i. e.* 8.1 while, lowest average score (6.5) was recorded in P_3D_2. On 40th day of storage (Fig. 3), P_2D_1 secured highest average score *i. e.* 7.5, while the lowest score *i. e.* 5.5 was secured by P_4D_2 and P_5D_2. On 60th day of storage (Fig. 4), P_2D_1 secured maximum average score *i. e.* 6.1, while minimum average score *i. e.* 4.1 was recorded for P_5D_2. On 80th day of storage (Fig. 5), the P_2D_1 and P_4D_1 recorded highest average score for colour, flavour and taste *i. e.* 4.6, while, P_5D_2 recorded minimum average score *i. e.* 3.3.

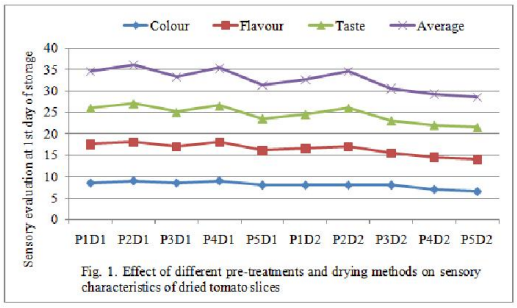

Fig. 1. Effect of different pre-treatments and drying methods on sensory characteristics of dried tomato slices

The sensory score decreased continuously with increase in storage period. This might be due to degradation chemical constituents. The flavour and colour losses also occurred due to chemical reactions, particularly non enzymatic browning. A slight difference in scores of tomato. Soup prepared with fresh and dehydrated tomato was observed with the latter showing lower score. This could be probably due to destruction of cellulose macro molecules in dehydrated products and softening due to loss of turgor pressure.

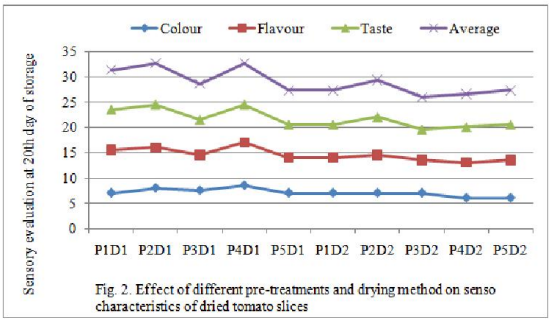

Fig. 2. Effect of different pre-treatments and drying method on senso characteristics of dried tomato slices

Similar reports were reported by Gupta and Nath (1984). The soup as a processed product from dried and dehydrated tomato slices was prepared. The tomatoes which were blanched by hot brine and dried in cabinet drier had the acceptable scores than sun dried tomato slices.

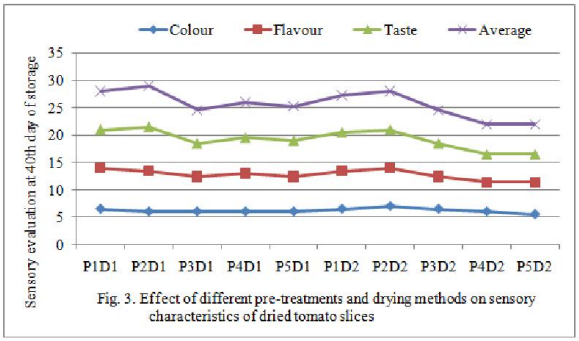

Fig. 3. Effect of different pre-treatments and drying methods on sensory characteristics of dried tomato slices

Chaturvedi *et al.* (2003) prepared tomato rice, tomato dhal and curry with dried and dehydrated tomato slices. The cabinet

dried tomato and recipes with it secured maximum organoleptic scores.

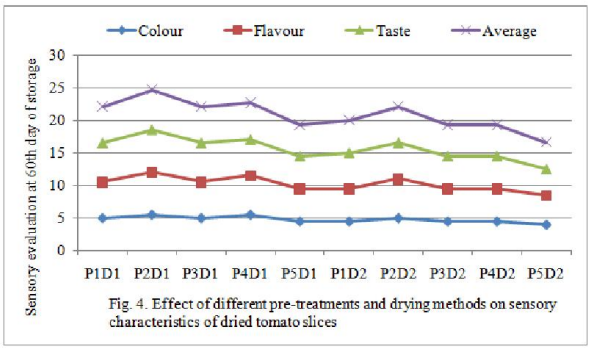

Fig. 4. Effect of different pre-treatments and drying methods on sensory characteristics of dried tomato slices

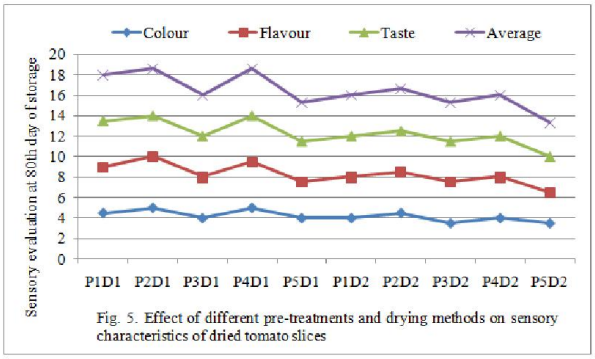

Fig. 5. Effect of different pre-treatments and drying methods on sensory characteristics of dried tomato slices

Conclusion

From the forgoing discussion it concluded that combination peeled by hot brine dip blanching + Tray drying was found best as per sensory evaluation. Therefore treatment Peeled by hot brine dip blanching + Tray drying can be suggested to the farmers or post-harvest technocrats for commercial based preparation of tomato slices.

REFERENCES

Chaturvedi, A., Reddy, T. N., Shankaraiah, V. and Dilip Babu, J. 2003. Nutritional quality and shelf life of dehydrated tomatoes and green chillies. *J. Res. ANGRAU.,* 31 (2): 90-100.

Choudhary, B. 2001. Vegetables of India, *National Trust, India.* Pp: 40.

Gupta, R. G. and Nath, N. 1984. Drying of tomatoes. *J. Food Sci. Technol.,* 21 (1): 372-376.

Panse, V. G. and Sukhatme, P. V. 1985. Statistical methods for Agricultural workers. *ICAR Pub*., New Delhi.

Saravaiya, S. N., Wakchaure, S. S., Jadhav, P. B., Tekale, G. S., Patil, N. B., Dekhane, S. S. and Patel, D. J.2014. Study the influence of foliar application of micronutrients on Tomato (*Lycopersiconesculentum* Mill.) cv. "Gujarat Tomato 2"*Intrenational Journal of Development Research*

****