

Original Research Article

Studies on Effect of Storage on Shelf Life of Spine Guard (*Momordica cochincinensis* L.)

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ABSTRACT

The experiment entitled “Studies on Effect of Storage on Shelf Life of Spine Guard (*Momordica cochincinensis* L.)” under Parbhani conditions was carried out during 2016-17 under the parbhani at Horticulture Department, V.N.M.K.V, Parbhani. During 2016-2017 with 18 treatment combination and two replication of spine gourd with a view to assess the physicochemical profile of spine gourds. The experiment was conducted on drying methods at different level compared with control in Factorial Randomized Block Design with two replications and 6 pre-treatment. During the investigation carried out on chemical pre-treatment, T₂ (MgCo₃-0.25%) dried under cabinet drying was found superior in maintaining minimum moisture, dehydration ratio, while maximum rehydration ratio, vitamin C, TSS, acidity, chlorophyll, sugar, iron thought the storage periods. However, the T₆ (control) treatment had registered the maximum moisture, dehydration ratio whereas minimum rehydration ratio, vitamin C, TSS, acidity, chlorophyll, sugar, iron.

Keywords

ascorbic acid,
carotene, thiamin,
riboflavin and
niacin

Introduction

Spine gourd, *Momordia cochinchinensis* L., also known as baby jackfruit or sweet gourd and gac fruit is one of the traditional fruits in Vietnam. This vegetable did not gain much popularity until it was discovered to have a high nutritional and medicinal value. The average nutritional value per 100g edible fruit was found to contain 84.1 per cent moisture, 7.7g carbohydrate, 3.1g protein, 3.1g fat, 3.0g fiber and 1.1g minerals. It also contained small quantities of essential vitamins like ascorbic acid, carotene, thiamin, riboflavin and niacin. It was concluded that this crop can be successfully cultivated in the plains and urban areas, as well as in countries where

subtropical and tropical conditions prevail. This crop can provide additional nutrients and help the body develop natural immunity from many common ailments. Dried Spine gourd slice is usually the dried aril component having the high concentration of nutrients and colour. (Aoki *et al.*, 2002; Ishida *et al.*, 2004).

Materials and Methods

The present investigation entitled the study on studies on effect of storage on shelf life of spine guard (*Momordica cochinchinensis* L.) was carried out in the Department of Horticulture, VNMKV, Parbhani) with the object To study the effect of storage on shelf

life of spine gourds. The study involved one genetically diverse with three drying methods. The organoleptic was conducted in the post harvest technology and analytical Laboratory at University Department of Horticulture Post Graduate institute, Vasantnao Naik Marathwada Krishi Vidhyapeeth, Parbhani with a semitrained panel consisting of teachers post graduate students. Dehydrated spine gourd slices were evaluated for sensory qualities viz. colour, texture, flavor and overall acceptability. Each attribute was given a separate score of 9 points hedonic scale. Organoleptic panel consisted of 5 trained panelists evaluate the samples as per the hedonic scale described by (Rangana, 1979)

Results and Discussion

Various Organoleptic parameters showed significant differences for various spine guard varieties.

Organoleptic parameters

The data pertaining to colour, flavor, texture, and overall acceptability of fried bitter gourd slices as influenced by pre-treatment and drying methods are presented in Table 1,2 and 3.all these parameters showed significant difference among various cultivars.

The overall acceptability of fried spine gourd slices depends upon colour, flavor and texture, from defects as per remarks of the evaluation. The scores obtained after 30, 60 and 90 days interval are presented in Table 1, 2 and 3.

On 1st day of storage, M3T2 secured highest overall acceptability score i.e. (8.7) for colour, flavor and texture which was closely followed by M2T2 with average score (8.2) in solar drying, while lowest score was registered in M1T2 which was (7.8) under sun drying.

Table.1 Effect of Storage period on organoleptic characteristics of cabinet dried spine guard. All these parameters showed significant difference among various cultivars

Treatment combination	0 days				30 days				60 days				90 days			
	Colour	Text	Flay	Over, accept	Colour	Text	Flay	Over accept	Colour	Text	Flay	Over accept	Colour	Text	Flay	Over accept
T ₁ (Blanching)	8.6	8.5	8.5	8.5	8.2	8.2	8.1	8.1	7.9	7.9	7.7	7.4	7.5	7.6	7	7.2
T ₂ (0.25% MgCo ₃)	8.8	8.7	8.8	8.7	8.3	8.3	8.5	8.4	8.1	8	8.1	8	7.7	7.8	7.8	7.8
T ₃ (2% NaCl)	8.2	8.2	8	8.1	7.9	8	7.8	7.8	7.6	7.8	7.4	7.4	7.2	7.4	7	7
T ₄ (Blanching+ 0.25% MgCo ₃)	7.9	7.4	7.6	7.5	7.6	7.4	7.3	7.4	7.2	7.3	7	7.1	7.1	7	6.9	6.7
T ₅ (Blanching+ 2% NaCl)	7.8	7.6	7.5	7.6	7.5	7.3	7.2	7.2	7.1	7	6.8	6.7	6.7	6.6	6.4	6.3
T ₆ (control)	7.5	7.3	7.2	7.3	7	6.9	7	7.1	6.8	6.6	6.7	6.5	6.4	6.2	6.4	6.2

Table.2 Effect of Storage period on organoleptic characteristics of solar dried spine guard. All these parameters showed significant difference among various cultivars

Treatment combination	0 days				30 days				60 days				90 days			
	Colour	Text	Flay	Over, accept	Colour	Text	Flay	Over accept	Colour	Text	Flay	Over accept	Colour	Text	Flay	Over accept
T ₁ (Blanching)	8	7.9	7.8	7.9	7.8	7.5	7.4	7.5	7.4	7.3	7.1	7.2	7	7	6.7	6.9
T ₂ (0.25% MgCo ₃)	8.2	8.1	8	8.2	7.9	7.7	7.8	8	7.5	7.4	7.4	7.7	7.2	7.2	7.2	7.4
T ₃ (2% NaCl)	7.5	7.8	7.6	7.6	7.2	7.4	7.2	7.3	6.9	7.2	7	7	6.5	6.8	6.8	6.7
T ₄ (Blanching+ 0.25% MgCo ₃)	7.3	7.6	7.2	7.5	7.2	7.5	7.1	7.2	6.8	7.3	6.6	7.2	6.5	7	6.6	6.7
T ₅ (Blanching+ 2% NaCl)	7.2	7.5	7	7.3	6.9	7.2	6.7	7	6.5	7	6.4	6.8	6.2	6.7	6.2	6.4
T ₆ (control)	7	7.1	6.5	6.8	7.9	6.9	6.2	6.4	6.4	6.6	6	6.2	6.2	5.8	5.8	5.9

Table.3 Effect of Storage period on organoleptic characteristics of sun dried spine guard. All these parameters showed significant difference among various cultivars

Treatment combination	0 days				30 days				60 days				90 days			
	Colour	Text	Flay	Over, accept	Colour	Text	Flay	Over accept	Colour	Text	Flay	Over accept	Colour	Text	Flay	Over accept
T ₁ (Blanching)	7.3	7.5	7.5	7.4	7	7.2	7.2	7	6.7	6.8	7.8	6.7	6.4	6.4	7.4	6.4
T ₂ (0.25% MgCo ₃)	7.5	7.8	7.5	7.8	7.2	7.4	7.2	7.4	6.8	7	6.9	7	6.4	6.7	7.6	6.6
T ₃ (2% NaCl)	6.8	7.2	6.6	6.4	6.4	6.8	6.2	6	6	6.4	5.8	5.7	5.6	6	5.4	5.2
T ₄ (Blanching+ 0.25% MgCo ₃)	6.7	7	6.3	6.5	6.5	6.7	6	6.3	6.3	6.4	5.5	5.7	5.5	6	5.2	5.4
T ₅ (Blanching+ 2% NaCl)	6.5	6.9	6	6.2	6.2	6.5	5.7	5.9	5.9	6.2	5.3	5.5	5.4	6.8	5	5.1
T ₆ (control)	6.9	6.5	6.4	6.8	6.5	6.2	6	6.4	6.2	5.8	5.7	6	5.8	5.4	5.4	5.7

Scale below 4-Poor, 4-6-Average, 6-8-good, above 8- excellent

Treat. Comb - Treatment combination

Col. - Colour

Text - Texture

Flay - Flavour

Over - Over acceptability

On the 30 days of storage, M3T2 recorded highest overall acceptability score for sensory characteristics i.e. (8.4). Lowest overall acceptability score (5.9) was registered in M1T6. Medium score was registered in solar drying i.e. (6.4) under M2T6

On the 60 days of storage, highest score was recorded in M3T2, (8.0) while least score of overall acceptability was recorded in M1T6 with score (5.5) and in between these two medium score registered in M2T6 in solar drying i.e. (6.2)

On 90 days of storage, M3T2 secured maximum overall acceptability score i.e. (7.8) while minimum score i.e. (5.1) was recorded in M1T6 and medium score in M2T6 (5.9)

The sensory score decreased continuously with increases storage periods.

From the present findings following conclusions can be drawn. Regarding sensory scores, the dried spine gourd slices prepared from the T2 (MgCo₃ - 0.25%) followed by T3 (Nacl - 2%) (Pre-treatment dried in cabinet drier secured the maximum score up to 8.8. Sensory quality of cabinet dried spine gourd slices is better as compare to solar and sun drying sample.

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