Comparative study on shelf life of *Lactuca sativa* and *Brassica oleracea* var. *capitata* inside open room environment, normal water and polythene bag

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Abstract:

The experiment was conducted at guna, Madhya Pradesh by collecting the fresh leaf of Lactuca sativa and Brassica oleracea var. capitata found around the local market of Guna. Fresh leaf of lettuce and cauliflower was taken and the observation was noticed after 2 and 4 days respectively. The results revealed that the leaf preserved in polythene bag show long shelf life in compare to leaf preserved in normal water and open environment. An intense study on these leaf help us to know that polythene bag can be used as better preservative for perishable commodities.

Key words: *Lactuca sativa; Brassica oleracea var. capitata,* Shelf life, Polythene bag, perishable commodities.

Introduction:

Lettuce (*lactuca sativa*) is an annual plant of the aster or sunflower family Asteraceae. It is most often grown as a leafy vegetables but sometimes for its stem and seeds. Lettuce is a fairly hardy, cool weather vegetables that thrives when the average daily temperature is between 60 to 70 F. Lettuce is most often used for salads, although it is also seen in other kinds of food such as soups, sandwiches and wraps: it can also be grilled.(en.wikipedia.org/wiki/lettuce)

Nutritional Facts (one cup raw leaf Lettuce chopped)

(**urbanext.illinois.edu/veggies/lettuce.cfm**)

Calories - 9	Vitamin A- 1456 IU
Dietary fiber -1.3	Vitamin C- 13.44
Protein - 1 gram	Calcium - 20.16
Carbohydrates- 1.34 grams	Iron - 0.62

Shelf life of lettuce

(www.eatbydate.com/vegetables/fresh- vegetables/how-long-does -lettuce -last/)

Unopened/ opened	Refrigerator
	Past printed date
Head iceburg lettuce lasts for	7-10 days
Head Romaine lettuce lasts for	7-10 days
Head leaf lettuce lasts for	5-7 days
Head butter lettuce lasts for	3-5 days
Chopped or loose lettuce lasts for	3-5 days
Fresh express lettuce lasts for	3-5 days

Cabbage (*Brassica oleracea* var. *capitata)* is a green or purple biennial cole crop, grown as an annual vegetable crop for its dense leaved heads. Cabbage heads generally range from 0.5 to 4 KG , and can be green, purple and white. Cabbage is the member of the genus Brassica and the family, Brassicaceae. Cabbage seedlings have a thin taproot and cordate (heart shaped) cotyledons. Temperature between 39 and 75 F prompt the best growth and extended periods of higher or lower temperature may result in premature bolting. (en.wikipedia.org/wiki/cabbage)

Nutritional Facts

(www.nutrition-and-you.com/cabbage.html)

Principle	Nutrient value
Energy	25 K cal
Carbohydrate	5.8 g
Protein	1.3 g
Total Fat	0.1 g
Cholesterol	0 mg
Dietary Fiber	2.50 mg
Vitamin A	98 IU
Vitamin K	36.6 mg
Vitamin C	76µg

Shelf life of Cauliflower

(www.eatbydate.com/vegetables/fresh-vegetables/cauliflower/)

	Fridge
Fresh Cauliflower lasts for	7-21 Days
Cooked Cauliflower lasts for	7-10 Days

Polyethylene (PE) the correct name for polythene, which is the trade name given to the material first commercially produced by ICI in the 1930s, is a member of a family of

materials called polymers. A plastic bag or polybag is a type of packaging made of thin, flexible, plastic film, non woven fabric, or plastic textile. Plastic bags are used for containing and transporting goods such as foods, produce, powder, ice, magazines, chemicals and waste.(en.wikipedia.org/wiki/polyethylene)

Materials and Methods

Collection of plants Material

For the purpose of observation of shelf life, two perishable plants were selected. The plants were collected from the local market of Guna, Madhyapradesh. The observation was performed based on various morphological characters. The two plants selected were *lactuca sativa* and *Brassica oleracea* var. *capitata.*

Polythene bag and Bucket

Black Polythene bag was purchased from market and Bucket was taken and filled with normal tap water. Collected plants leaves were taken and enclosed in air tight polythene bag and dipped in normal water collected in bucket.

Result and Discussion

After genuine study on the fresh leaf of lettuce and cauliflower and its comparision with the leaf after 2 and 4 days in different environmental condition we able to observe that the leaf preserved in polythene bag shows better result in compare to leaf preserved in normal water and open environment as shown in figures below.

Fig. 1 shows the fresh purchased leaf from the local market of guna which is more fresher than the rest of leafs at different condition. Fig 2.1 and 2.2 shows the cauliflower leaf preserved in polythene bag and normal water. Fig 3.1 and 3.2 shows the lettuce leaf preserved in polythene bag and normal water. Fig 4 shows the lettuce and cauliflower leaf after 2 days at normal room environment. Fig 5.1and 5.2 shows the cauliflower leaf preserved in polythene bag and normal water. Fig 6.1 and 6.2 shows the lettuce leaf preserved in polythene bag and normal water. Fig 7 shows the lettuce and cauliflower leaf after 4 days at normal room environment.

Finally we able to conclude that the leaf preserved in polythene bag shows better result in compare to the leaf preserved in normal water and open room environment. So the intense study on these leaves proves that the polythene bag can be used as better preservative for perishable commodities which help to increase the shelf life of the plants for longer time.

fig 1: Freshly collected lettuce and cauliflower leaves

fig2.1: Cauliflower leaf observed after 2 days in polythene bag

fig2.2: Cauliflower Leaf after 2 days observed in water

Fig3.1: Lettuce leaf observed after 2 days in polythene bag

Fig3.2: Lettuce leaf observed after 2 days in water

fig 4: lettuce and cauliflower leaf observed in normal room environment after 2 day

fig5.1: Cauliflower leaf after 4 days deeped in normal water

fig5.2: Cauliflower preserved in polythene bag after 4 days

fig6.1: Lettuce leaf observed after 4 days deeped in water

fig6.2: Lettuce leaf observed after 4 days preserved in bag

fig7: lettuce and cauliflower leaf observed in normal room environment after 4 day

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