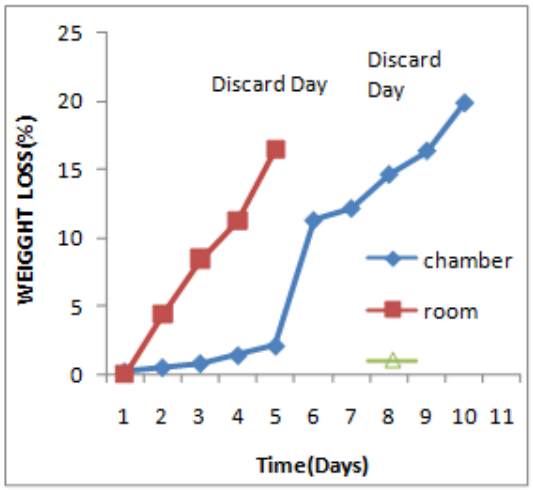
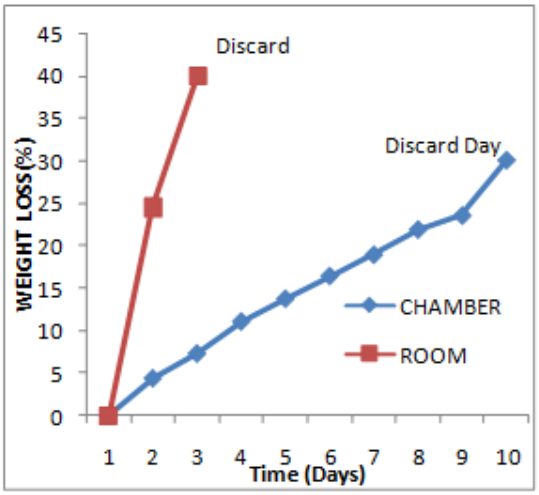
The physiological loss in the weight (PLW) of vegetables stored in both solar passive cool chamber and room conditions were carefully investigated daily.

In Figure 5 (a), (b), (c), (d), (e) show daily changes in PLW of Tomato, Ladyfinger, Bringal, Green Chillies and Spinach in room conditions and cool chamber are shown respectively. In the experiment, major differences were found in PLW (%) of ladyfinger, green chillies and spinach. During the research it was found that vegetables stored in the solar passive cool chamber (at average temperature of 29°C) and at room temperature (average of 38°C). Tomato stored outside the solar passive cool chamber showed PLW of 16.4% after 4 days, while tomato stored inside the solar passive cool chambershowed 16% after 10 days. Ladyfinger stored outside the solar passive cool chambershowed PLW of 40% after 2 days, while ladyfinger stored inside the solar passive cool chambershowed 30% after 10 days. Bringal stored in room condition showed a PLW of 16.63% after 3 days while bringal stored in cool chamber showed 11.84% after 11 days. Green chillies stored in room condition showed PLW of 33% in 3 days whereas those stored in cool chamber showed a PLW of 31.31% in 11 days. Spinach stored in room temperature showed PLW of 42% in 2 days whereas those stored in cool chamber showed a PLW of 33.3% in 3 days. Thus, vegetables stored inside the solar passive cool chambershowed lower PLW than those stored outside the solar passive cool chamber.



(a) Tomatoes



(b) Lady finger

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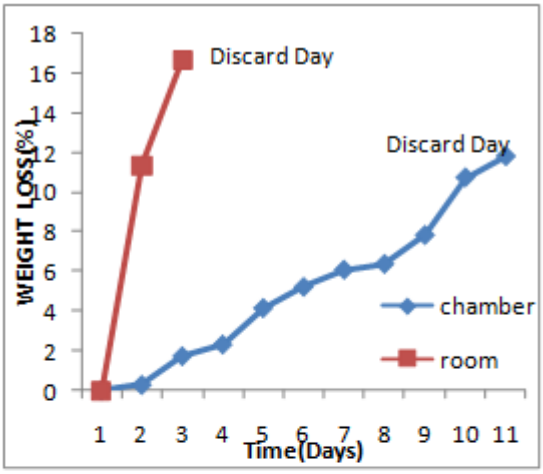
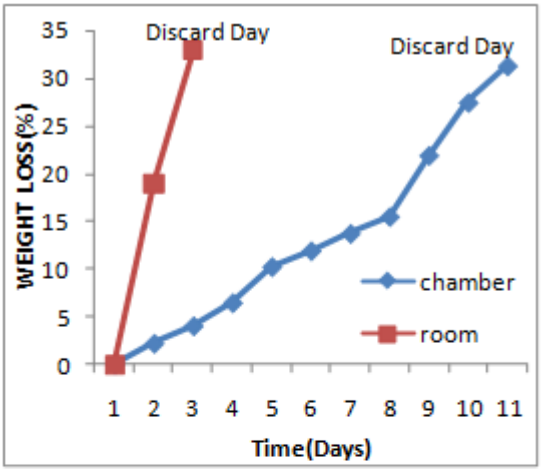
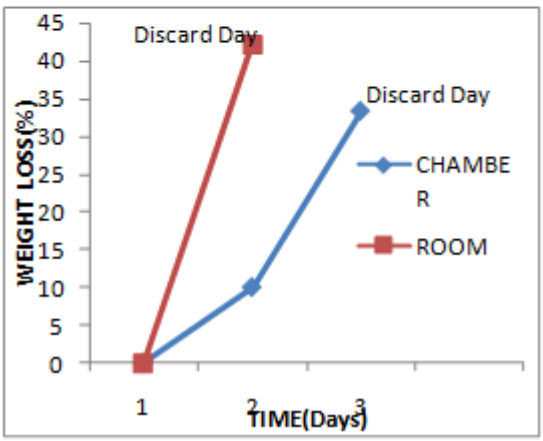


(c) Bringal



(d) Green Chillies



(e)Spinach

Figure 5: Physical Weight loss (%) V/s Time(days)Daily changes in PLW of (a) Tomato, (b) Ladyfinger, (c) Bringal, (d) Green Chillies and (e) Spinach in room conditions and cool chamber.

5.3 VISUAL APPEARANCE AND SURFACE OBSERVATION

The observed changes in the quality of stored vegetables in the cool chamber as well as in room are reported in Table 1. The cool chamber prolongs the shelf life of vegetables as well as maintains quality as seen in table 1. This table shows that 5% shrinkage noticed for the lady finger against 40% shrinkage in the room on its discarding day. Similar better results were found for other vegetables preserved in the cool chamber compared to vegetables preserved in room.

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Fig 6 shows the photograph of each vegetable stored in both room and cool conditions on the day of rejection in room. It clearly shows that vegetables kept in cool chamber are in considerable very good condition than those in room conditions.

Fig 6(A): Tomato after 5 Days (Room Condition Discard Day)

Fig6 (B): Ladyfinger after 3 Days (Room Condition Discard Day)

Fig 6(C): Bringal after 3 Days (Room Condition Discard Day)

Fig 6(D): Green Chillies after 3 Days (Room Condition Discard Day)

Fig 6(E): Spinach after 2 Days (Room Condition Discard Day)

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S. NO	VEGETABLES	QUANTITY (gms.)	Visual Appearance On Discard Day Of Vegetables Stored In Room		Shelf life(DAYS)	
			COOL CHAMBER	ROOM	COOL CHAMBER	ROOM
1.	Tomato	1024	5% Shrinkage, Skin Appearance Fine Edible. Taste Fine.	30% Shrinkage, Skin Appearance Became Dull. Inedible.	10	4
2.	Ladyfinger	750	10%Shrinkage, Skin Appearance Fine, Edible	60% Shrinkage, Skin Appearance Dull And Hardened. Taste Changed.	9	2
3.	Bringal	1030	5% Shrinkage, Skin Appearance Fine, Edible.	50% Shrinkage, Colour Changed To Yellowish Brown. Inedible	9	2
4.	Green Chilies	495	10% Shrinkage, Skin Appearance Fine	60% Shrinkage, Some Chilies Colour Changed To Red. Taste Changed	10	2
5.	Spinach	408	30% Shrinkage, Appearance Good,	80% Shrinkage, Colour Changed And Leaves Are Dried. Inedible	2	1

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6. CONCLUSION

The solar passive cool chambercan maintain relatively low inside temperature and high relative humidity as compared with outside temperature and relative humidity. Temperature inside the solar passive cool chamber can be reduced through the process of an evaporative cooling mechanism and by using shading device to protect the solar passive cool chamber against direct exposure to solar radiation. The moisture condition on the walls in the solar passive cool chamberand the ground condition also help to maintain higher relative humidity. During investigation it was found that as compared to the ambient conditions, temperature within the chamber is reduced by 12-15^{o}C, while humidity is maintained above 82% level, thus maintaining the quality of the vegetables.

The cool chamber increased the shelf life of vegetables significantly. Most significant change in shelf life was recorded in case of ladyfinger, green chillies and bringal. An increase of 7, 7,8,6,1 days was recorded in case of bringal, ladyfinger, green chillies, tomato and spinach respectively.

It is to be noted that all the data are recorded between 9 am to 4 pm because of university timing. Since the model is at the terrace and the shed used in making the model is made of agro net and is supported by bamboo it was very difficult to make it withstand strong gusts of wind blowing during summer season. Therefore and erected in truss formation. The structure used for shed was made of bamboo. Potential improvements include improvements in materials used, mainly in shed material and study is needed to be done in microbial growth in vegetables.

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