



A study on shelf life of tomato, grape and milk under evaporative cool chamber and other storage conditions

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ABSTRACT

An evaporative cool chamber was designed and constructed by using soil and river bed sand and named as **Janta** cool chamber (J.C.C.). A comparative study was made to determine shelf-life of tomato, grapes and milk inside the cool chamber along with refrigerator, polyethylene bags, muslin cloth and in the ambient condition and their shelf-life was determined. The **Janta** cool chamber (J.C.C.) does not require any mechanical or electrical energy input and can be constructed with locally available materials and built by unskilled labourers. It is economical, eco-friendly and can store the tomato, grapes and milk for longer period with no significant loss.

INTRODUCTION

Preservation of food is a primitive invention of man during abundant availability of perishable eatable and lesser requirement, man's effort have been directed towards storage of foods. India is a second largest producer of fruits and vegetables after Brazil and China, respectively. It produces about 33 million tonnes of fruits and vegetables annually but it wastes about 30 per cent worth Rs. 28810 crore annually, which is more than what UK consumes in a year (India today, 1999), owing to lack of information on appropriate post harvest treatments and proper on-farm storage facilities, it is estimated that about 20-30 per cent of total fruits are lost after harvesting (Kadar, 1987).

Fruits and vegetables are living entities, respiring tissues separated from their parent plant to continue to respire after separation. Due to perishable nature, they deteriorate their freshness and taste after harvest. Keeping produces at their lowest safe temperature (0°C for temperature crops or 10-12°C for chilling sensitive crops) will increase storage life by

lowering respiration rate, decreasing sensitivity to ethylene gas and reducing water loss. Reducing the rate of water loss, slows the rate of shrivelling and wilting cause serious post-harvest losses. Maintenance of air conditioned structures/appliances in villages is not possible for farmers due to high energy consumption and irregular supply of electricity. Therefore, the cold storage facilities, mainly confined to rural areas only, are not so popular among the farmers.

Evaporative cooling has been found to be an efficient and economical means for reducing temperature and increasing humidity is comparatively low. Thompson and Kasmire (1981) developed an evaporative cooler for vegetable crops. Vakis (1981) has also developed a cheap cool store in Kenya, with the help of local grass for the storage of vegetables. He kept the roof and walls wet by dripping water from the top of the roof. Roy and Khurdia (1986) constructed an evaporative cooled structure for storage of the fruits and vegetables with a double wall made of baked bricks and the top of the storage space covered with khas-khas/gunny cloth in a bamboo framed structure. Mordi and Olorunda (2003) reported storage life of