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Suitability of some post harvest treatment combinations for better shelf life of green chilli (*Capsicum annuum* L.)

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ABSTRACT

Green chilli is most important vegetable cum spice crop of the world and compulsory item of every kitchen for cooking, salad and making sauces, canned green chilli, pickles etc. Due to its perishable nature a huge loss of fresh fruits occurs in weak marketing channels throughout the India. The present investigation on the suitability of some post harvest treatment combinations for better shelf life of green chilli revealed that LDPE + Cool + GA_3 was most effective and suitable for increasing the shelf life of chilli less effecting the quality in respect to less physiological loss in weight (PLW), highest green colour retension and highest ascorbic acid content. When chemicals are not available the harvested fresh fruits can be stored after wrapping with PVC or LDPE and should be kept within cold condition (6-8°C temperature with 75 % RH) for better shelf life.

Key words : Chilli, Storage, Post harvest quality.

Green chilli (*Capsicum annuum* L.) is one of the common vegetable cum spice crop of the world. The mature green fruits are the compulsory item of every kitchen for cooking and salad. Besides sauces, canned green chilli, pickles are produced from green chillies. Though the crop was introduced from Brazil during 16th centuries, it is now growing in allover the India. Andhra Pradesh, Karnataka, Maharashtra, Orissa, Tamilnadu are the leading states in chilli production in India. In West Bengal there is a considerable production of green chilli. But due to lack of improved marketing channels a huge destruction of fresh chilli before marketing are causing a great loss for chilli growers, mainly during the end of summer and throughout the rainy season. In some chilli growing belts of North Bengal farmers are now in opposite of growing green chilli as there are no such special cold storage facility and facility of processing of green or red chillies. Also low cost, easy posthervast technologies for extending the shelf life of green chillies are not in hand. Keeping this in mind an attempt was made in present investigation to find one low cost and easy post harvest operation to increasing the shelf life of green chilli.

MATERIALS AND METHODS

The present study was carried out at Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar (WB) during 2006-2007. Seeds of local chilli cultivar were collected from Haldibari (a prominent chilli growing belt of Cooch Behar district) and were grown at the institutional farm of the university following the standard package of practices to obtain the fresh green chilli fruits. Just harvested fresh fruits were taken for 18 different post harvest treatment combinations, T_1 -LDPE + Ambient + GA_3, T_2- LDPE + Ambient + $CaCl_2$, T_3- LDPE + Cool + GA_3, T_4- LDPE + Cool + $CaCl_2$, T_5-PVC + Ambient + GA_3, T_6- PVC + Ambient + $CaCl_2$, T_7-PVC + Cool + GA_3, T_8- PVC + Cool + $CaCl_2$, T_9- LDPE + Ambient + DDW, T_{10}-LDPE + Cool + DDW, T_{11}- PVC + Ambient + DDW, T_{12}-PVC + Cool + DDW, T_{13}- GA_3 + Ambient, T_{14}- GA_3 + Cool, T_{15}- $CaCl_2$ + Ambient, T_{16}- $CaCl_2$ + Cool, T_{17}- DDW + Ambient, T_{18}- DDW + Cool,

LDPE : Packaging the fruits with Low Density Poly Ethylene of 100 guaze having 5 % perforations.
PVC : Packaging the fruits with Poly Vinyl Chloride.
Ambient: 20-30°C temperature with 90-95 % RH
Cool : 6-8°C temperature with 75 % RH
GA_3 : Solution of Gibberellic Acid 3 @ 150 ppm
$CaCl_2$: Solution of Calcium Chloride @ 0.5 %
DDW : Double Distilled Water

In case of post harvest treatment combinations having GA_3 or $CaCl_2$ or DDW the fresh fruits were dipped into the solutions or water as suitable for 10 minutes. Then they were packed with packaging materials and stored according to the treatment combinations. Ambient + DDW was considered as the control treatment.

The observations on Physiological Loss in Weight (PLW) in percentage, changes in chlorophyll content (mg/100g) and changes in ascorbic acid content (mg/100g) were taken on 5th day, 10th day, 15th day, 20th day and 25th day. Chlorophyll and ascorbic acid content were analyzed