Development of a methodology for extending the shelf life of lime as fresh produce

***H.S,Jayawardene**, Institute of Post Harvest Technology, Research and Development Centre, Jayanthi Mawatha, Anuradhapura.*

Lime (*Citrus aurantifolia*) is a very important fruit grow in Sri Lanka covering dry and intermediate zones. Badulla and Monaragala areas of Uva province and Maho and Galgamuwa areas of north western province are the major areas of growing lime in intermediate and dry zone of Sri Lanka respectively. Fruits and vegetables losses in developing countries is 10-35% including Sri Lanka which also true even for lime owing to lack of storage facilities and poor postharvest handling.

Availability of the lime in the market is limited to a short period of time in the year due to seasonality of the production from April to July. Fluctuation of lime price has been observed in a considerable range per kilogram throughout the year, giving a higher price in the off season due to unavailability of produce. Availability of good quality fresh lime fruits is limited due to seasonality of production within the year from April to July.

Therefore it was important to develop and introduce new storage methods for the lime fruits which help farmers to store fresh commodity for long term as well as short term. Farmers need to store fruits for short time, e.g. week, until whole sale buyers come and long term storage methods will be helpful them to store produce for two or three months when they have excess production.

This research project was started with the aim of giving a solution for the above matters with regard to storage practices for short term and term. Main objectives were to develop a methodology to store lime fruits for long term storage more than three months and to increase the availability of fresh good quality fruits at off season. Short term objectives were to develop a low cost method to store lime fruits for short term period less than one month and to reduce postharvest loss with in short term storage at farm level.

Lime fruits in correct maturity stage was harvest directly from farmers orchards' and transport to fruit processing laboratory without making postharvest damage to the fruit samples. Fruits

having correct maturity was selected based on the color of the fruit skin having light green stage and fruits around 35±2 mm in diameter.

Best fresh fruits without postharvest damages, physical damage or pathological attacks were selected and washed with potable water to remove dust particles. Fruit sample was treated with 2% sodium bicarbonate solution and air dried.

Three different media such as sand, paddy husk and coir dust was used as storage media separately. Fruit samples were packed in plastic crates covering with storage medium. Plastic crates with the medium and samples were stored under special storage room built with clay walls and Palmira leave roof which gave low temperature and high relative humidity. Fifty (50) fruits were stored in each crate as five replicates, each replicate having ten fruits. Floor of the storage structure was moistened to increase the relative humidity inside the structure.

Storage time was increased with different media like sand, paddy husk and coir dust respectively. Sand had lowest time about one to two weeks and four weeks at least, for the other two media. Moisture loss had been observed with in storage time which needs to overcome next time. Skin colour changes were observed over the storage time. Future research activities need to reduce the moisture loss and prevent fruit skin colour changes.