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Mango is the largest produced tropical fruit in India. In spite of, its largest production the availability is restricted to only a few months due to its poor shelf life. Mangoes are rich in vitamin A, vitamin C and also iron and potassium. Higher intake of these vitamins and minerals are needed to reduce the higher percentage of night blindness and anemia prevalent among children. Mango can be a food supplement to overcome these deficiencies due to its higher vitamin and mineral content. To make mango available throughout the season suitable technologies for increasing the shelf life of fresh ones or drying technologies to preserve the nutritive value must be developed. In this direction we conducted 3 experiments during the fellowship period to understand the effect of electric field and electrolysed water pre-treatments on the quality during storage and also to understand the effect of different drying methods on the dried mango flesh quality. Our results indicate that the tree ripe fruits can be successfully stored at 5℃ for 20 days without significant change in quality. Fruits maintained their ascorbic acid, carotene, total soluble solids and anti-oxidative capacity up to 20 days of storage. During the storage fruits also maintained the concentration of carene and terpinolene which are responsible for sweet mango aroma of Irwin cultivar. After 20 days of storage off-odors were produced due to the production of heptenal, decenal, heptanol and nonenal due to the lipid and fatty acid oxidation. Tree ripe fruits were more suited for low temperature storage than mature green ones. Electric field pre-treatment did not have any significant effect on shelf life of fruits.

Acidic electrolysed water pre-treatment reduced the microbial load on the fruits especially in non-ripened fruits and also improved the development of yellow color. It did not have any significant effect on the aroma development.

Drying of fruit slices was done using freeze drying, electric field drying, super heat steam drying, hot air oven and air drying methods. Electric field drying of mango slices reduced the anti-oxidative capacity and ascorbic acid significantly. Ascorbic acid content was also low in air dried and hot air oven dried mangoes. On the other hand, there was no reduction in carotene during drying. Most of the terpenes responsible for mango aroma were removed during the drying process. Concentrations of off-odor compounds like heptanal, decanal, nonanal and hexanal and other aldehydes were higher in high temperature drying methods. In super heated steam drying cooked mango flavor was more. Electric field and air drying produced more ethanol. are due to the generation of lipid oxidation products like heptanal, decanal, nonanal, hexanal and other aldehydes. Freeze drying and super heat drying was better in maintaining the ascorbic acid and carotene closely followed by hot air oven drying at 40℃. To retain fresh mango aroma in dried mangoes, it is therefore important to avoid methods involving vacuum and high temperatures.