Production Practices and Quality Assessment of Food Crops

Volume 4

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Proharvest Treatment and Technology

Edited by

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PREFACE

We can not talk about commodity production without building up all the operations after harvest. It is possible to market the products just after harvest, but it is only possible in small quantities. Postharvest handling is the ultimate stage in the process of producing quality fresh fruits and vegetables, getting these unique packages of water (fresh commodities) to the supper table. Fresh fruits and vegetables are susceptible to a number of postharvest disease and disorders and the postharvest operations are predominately aimed at maintaining harvest quality. Every step in the handling chain can influence the extent of disease and quality of the stored product. From planting to consumption, there are many opportunities for bacteria, viruses, and parasites to contaminate produce or nutrient deficiency level causing physiological disorders. Most of the storage rots are diseases that have originated in the field and have carried over onto commodities after harvest. Physiological disorders also arise from poor handling between harvest, storage and marketing. Treatments have a direct effect on inactivating or outright killing germinating spores, thus minimising rots. Prestorage treatment appears to be a promising method of postharvest control of decay. Pre-or-postharvest treatments of commodities are considered as potential alternatives for reducing the incidence of diseases, disorders, desinfestation of quarantine pests and for preserving food quality. Postharvest treatments lead to an alteration of gene expression and fruit ripening can sometimes be either delayed or disrupted. the tolerance to high and low postharvest temperatures may be influenced by preharvest high temperatures of the crop. Cell wall degrading enzymes and ethylene production are frequently the most disrupted and are sometimes not produced or their appearance is delayed following heating.

Eleven chapters are included in this book, which are: Application of Sensitive Trace Gas Detectors in Post-harvest Research; Radio Frequency Post-Harvest Quarantine and Phytosanitary Treatments to Control Insect Pest in Fruits and Nuts; Calcium, Polyamine and Gibberellin Treatments to Improve Postharvest Fruit Quality; Ionization of Fruits and Vegetables for Fresh Consumption – *Effect on detoxication Enzymatic Systems and the Lipid Fraction*; Treatments and Techniques to Minimise The Postharvest Losses of Perishable Food Crops; Strategies for the Regulation of Postharvest Fruit Softening by Changing Cell Wall Enzyme Activity; Posthavest Treatment of Fruits; Postharvest Treatments of Satsuma mandarin (*Citrus unshiu* Marc.) For the Improvement of Storage Life and Quality; Sprouting Radioinhibition: A Method to Extend the storage of Edible Garlic Bulbs; Postharvest Processing of Fruits and vegetables by Ionizing Radiation; Desinfestation of Fresh Horticultural commodities by Using Hot Forced Air With Controlled Atmospheres.

This book covers various aspects of postharvest handling quality and the use of different treatments to reduce the incidence of diseases or physiological disorders affecting the quality maintenance of the food crops. Also described is the production, packaging, cooling, transportation, and marketing costs of crops. It is obvious that marketing positions are uncertain without a complex postharvest

network. The challenge facing industries is to produce food of good quality with few chemical inputs as public concern increases over food safety, environmental issues and chemical resistance.

The editors wish to express their sincere gratitude to all authors for their valuable contributions. We are grateful to Kluwer Academic Publishers for giving us an opportunity to compile this book.

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