

**Title** Post-harvest research goals revisited: a new vision targeting nutraceuticals to increase value of food crops and medicinal plants

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### **Abstract**

In recent years, several studies have shown the association between fruit and vegetable consumption and the prevention and progression of several chronic diseases and degenerative disorders such as cancer, cardiovascular, obesity, diabetes, inflammation and Alzheimer among others. Furthermore, studies on bioactive compound or nutraceutical discovery from food crops and medicinal plants have focused on understanding the molecular mechanism of action in several biochemical and biological assays including in vitro, animal and clinical studies. All these effects have been in part responsible for an increase in the awareness of consumers for healthier products. High value health markets including dietary supplements, functional foods, cosmeceutical and pharmaceutical experience higher demands each year. Traditionally, post-harvest research goals have been focused on quality and shelf-life extension efforts mainly targeting the fresh produce market and the food processing market in few cases. In this presentation we propose the concept that post-harvest goals should orient efforts towards nutraceutical enhancement in food crops and medicinal plants to target these high value health markets. In this new vision, post-harvest research efforts will prioritize bioactive properties or compounds and not necessarily quality. For example, during crop production emphasis will focus on pre-harvest factors including genotype selection, cultivation practices and environmental conditions to enhance bioactive compounds. Horticultural maturity index efforts will use chemical, biochemical, biological and gene expression assays to determine the optimum condition for enhanced bioactive properties. Post-harvest handling efforts will emphasize in maintaining or stimulating the biosynthesis of active compounds from the crops to obtain stable bioactive extracts for these alternative markets. In this presentation we will give examples of work done in our group as well as from other groups that will be used to support this new concept.