

Post Harvest Treatment Effects on Crown-Cut Broccoli Shelf life

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ABSTRACT

The effects of packaging treatments, post harvest cooling delay and storage duration on color, texture, ascorbic acid content, weight loss and glucosinolate retention in crown-cut heads of broccoli were studied. Oxygen and CO₂ levels inside shrink wrap packages were also monitored. Shrink wrap packaging had a significant positive effect on hue angle ($p \leq 0.05$). Packaging and post harvest cooling delay had no effect on hue difference (ΔH) and total color difference (ΔE). While post harvest cooling delay had no effect on texture, crown-cut heads of broccoli stored in shrink wrap packaging retained firmness significantly better than ice packaged heads of broccoli ($p \leq 0.05$). Ascorbic acid was retained better in broccoli held in shrink wrap packages and cooling delay had a significant negative influence on ascorbic acid content ($p \leq 0.05$). Packaging and post harvest cooling delay had a significant positive effect on weight loss ($p \leq 0.05$). Broccoli stored in shrink wrap film lost about 3.7% of original weight while ice packaging resulted in about 17.4% weight loss ($p \leq 0.05$). No consistent trends were observed in the levels of O₂ and CO₂ inside shrink wrap packages. An important glucosinolate, glucoraphanin was retained significantly better in shrink wrapped heads ($p \leq 0.05$). Between two cultivars, shelf life of cv.Gypsy was better than cv.Everest with respect to color, ascorbic acid retention and weight loss. But cv.Everest retained texture (firmness) better after 35 days of storage. Overall results indicate that shrink wrap packaging and shorter post harvest cooling delays protect quality of broccoli.

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TABLE OF CONTENTS	PAGE
TITLE	<i>i</i>
ABSTRACT	<i>ii</i>
ACKNOWLEDGMENTS	<i>iii</i>
TABLE OF CONTENTS	<i>iv</i>
LIST OF TABLES	<i>vi</i>
LIST OF FIGURES	<i>vii</i>
I. INTRODUCTION	1
II. REVIEW OF LITERATURE	
A) Modified Atmosphere Packaging	3
1) Factors affecting modified atmosphere	4
2) Methods of creating modified atmosphere conditions	6
B) Films for packaging fresh produce	7
C) Yellowing in broccoli	7
D) Effects of post harvest cooling delay on post harvest storage	9
E) Ascorbic acid in broccoli	9
F) Glucosinolates in broccoli	10

III. POST HARVEST TREATMENT EFFECTS ON CROWN-CUT BROCCOLI SHELF LIFE	
A. Abstract	20
B. Introduction	21
C. Materials and Methods	23
D. Results and Discussion	28
E. Conclusions	39
F. Acknowledgements	40
G. References	41
IV. APPENDICES	
A) Vita	47

LIST OF TABLES

Chapter III	Page
1. Effects of packaging, post harvest cooling delay and storage duration on percent weight loss in crown-cut broccoli	28
2. Effects of treatment interactions between crown-cut broccoli varieties and packaging on percent weight loss	29
3. Color difference values of crown-cut broccoli as affected by packaging, post harvest cooling delay and storage duration	30
4. Effects of packaging, post harvest cooling delay and storage duration on Warner-Bratzler texture values of crown-cut broccoli	32
5. Effects of treatment interactions between crown-cut broccoli varieties and packaging on Warner-Bratzler texture values	33
6. Effects of treatment interactions between crown-cut broccoli varieties and post harvest cooling delay on Warner-Bratzler texture values	33
7. Effects of packaging, post harvest cooling delay and storage duration on ascorbic acid retention in crown-cut broccoli	34
8. Effects of packaging, post harvest cooling delay and storage duration on levels of O ₂ and CO ₂ inside shrink wrap packages of crown-cut broccoli	36
9. Effects of packaging on individual glucosinolate retention in crown-cut broccoli	37

LIST OF FIGURES

Chapter III	Page
1. HPLC profile of desulfoglucosinolates in rapeseed reference material (BCR-190R) Peaks: (1) Progoitrin; (2) Gluconapin; (3) 4-hydroxy glucobrassicin; (4) Glucobrassicinapin; (5) Gluconapoleiferin; (6) Epiprogoitrin.	38
2. HPLC profile of desulfoglucosinolates in broccoli heads packaged in shrink wrap film. Peaks: (1) Glucoraphanin; (2) Glucobrassicin; (3) Progoitrin; (4) Gluconapin; (5) Gluconapoleiferin	38
3. HPLC profile of desulfoglucosinolates in broccoli heads stored in ice. Peaks: (1) Glucoraphanin; (2) Glucobrassicin; (3) Progoitrin; (4) Gluconapin; (5) Gluconapoleiferin	39