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Linking the Quality of Sweet Basil Leaves to the Quality of Pesto

A thesis presented in partial fulfilment of the
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ABSTRACT

The method for linking basil quality to pesto quality has not been invented but the urgency is certain. If the quality loss of pesto is due to the loss of basil leaves quality, then financial loss suffered by basil-based producer could be reduced by only maintaining basil leaves quality. Through several batches of experiments, the methods of measuring senescence and chilling injury (CI) of basil leaves and the blackening rate of pesto were developed to investigate the impact of pre-processing factors (leaf washing, blanching, and storing) on basil and pesto quality. The final aim was to test whether there was a correlation between senescence or CI in basil leaves and blackening rate of the pesto. The methods included the selection of spectrophotometer proxy, number of replication, processing duration, pesto setting, fitting curve, sampling, cooling techniques, factors that influence all variables, and also solving some issues regarding data and pesto appearance.

The result produced several findings. First, measuring senescence or CI of basil leaves could be simply done by cooling basil leaves to a certain level of cold temperature and duration, left them in room temperature for a day and used percentage of rotten leaves and weight loss as the indicators of the symptoms severity. Second, measuring blackening rate of pesto could be done by using L value as the proxy of spectrophotometer and transformed the data into negative exponential to find the K value. Third, there was no correlation between senescence or CI in basil leaves and blackening rate of their pesto. Fourth, pre-processing factors impacted basil quality but not the pesto quality. Washing basil leaves before pesto processing could raising up the initial L value of pesto, blanching could created darker pesto, and storing basil leaves could lead to CI or senescence development, but those factors never affect the blackening rate of pesto.

Keywords: *Ocimum basilicum*, basil, chilling injury, senescence, blackening rate, blanching, temperature, cold storage

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TABLE OF CONTENTS

ABSTRACT	I
ACKNOWLEDGEMENTS	II
TABLE OF CONTENTS	III
LIST OF TABLES	V
LIST OF FIGURES	VI
CHAPTER 1. INTRODUCTION	1
CHAPTER 2. LITERATURE REVIEW	4
2.1 Sweet basil (<i>Ocimum basilicum</i> L.)	4
2.1.1 The importance of sweet basil	4
2.1.2 Essential oils (EOs) of sweet basil	4
2.1.3 The composition and distribution of sweet basil's chemical material	5
2.1.4 Storing sweet basil	7
2.2 Senescence	8
2.2.1 Mechanism of senescence	8
2.2.2 Hormones of senescence	9
2.3 Discoloration	11
2.4 The factors that influence senescence and discoloration	13
2.5 Chilling injury	18
2.5.1 CI mechanism	18
2.5.2 Blackening	19
2.5.3 Oxidative stress	20
2.6 The techniques that could be used to preserve sweet basil	20
2.6.1 Low temperature storage	20
2.6.2 Blanching	22
2.7 Pesto	22
CHAPTER 3. MATERIALS AND METHODS	24
3.1 Preliminary research	24
3.1.1 Plant Materials	24
3.1.2 Sampling and pesto processing	24
3.1.3 The blackening assay	25
3.2 Seven batches of experiment	26
3.2.1 First Batch (fast cooling and step-down cooling)	27
3.2.2 Second Batch	29
3.2.3 Third Batch	29
3.2.4 Fourth Batch	30
3.2.5 Fifth Batch	30
3.2.6 Sixth Batch	31
3.2.7 Seventh Batch	33
CHAPTER 4. RESULT AND DISCUSSION	34
4.1 Preliminary Research	34
4.1.1 Proxies for describing colour change of pesto	34

4.1.2	Data transformation and fitting curve	36
4.1.3	Plants part testing	37
4.1.4	Conclusion of the preliminary research	39
4.2	First Batch	40
4.2.1	Proxy selection	40
4.2.2	Basil quality	43
4.2.3	Quality of pesto	45
4.2.4	Statistical analysis result	46
4.2.5	Correlation between variables	47
4.2.6	'Odd' colour of some pesto	50
4.2.7	Conclusion of Batch 1	51
4.3	Batch 2	53
4.3.1	The quality of basil leaves	55
4.3.2	The quality of pesto	55
4.3.3	Pesto issues	56
4.3.4	SS impression to the correlation between basil and pesto quality	58
4.3.5	The relationship between basil quality and pesto quality	60
4.3.6	Conclusion of Batch 2	61
4.4	Batch 3	34
4.4.1	The quality of basil	64
4.4.2	The quality of pesto	64
4.4.3	The impression of 'noisy' data	64
4.4.4	Pesto Issues	65
4.4.5	Conclusion of Batch 3	66
4.5	Batch 4	66
4.6	Batch 5	68
4.7	Batch 6	69
4.7.1	The quality of basil	70
4.7.2	The quality of pesto	71
4.7.3	The relationship between basil quality and pesto quality	73
4.7.4	Conclusion of Batch 6	75
4.8	Batch 7	76
4.8.1	Basil quality	76
4.8.2	Pesto quality	77
4.8.3	The relationship between basil quality and pesto quality	78
4.8.4	Conclusion of Batch 7	79
4.9	Summary of storage at 12°C	80
4.10	Summary of storage at 4°C	81
4.11	Summary of water treatment	82
	CHAPTER 5. CONCLUSION	84
	CHAPTER 6. FUTURE RECOMMENDATION	87
	CHAPTER 7. REFERENCES	88
	APPENDIX. EXPERIMENTAL RAW DATA	103

LIST OF TABLES

Table 1 Pesto colour of preliminary research.....	38
Table 2 T test or ANOVA of First Batch (A) cooling technique (B) cold storage duration (C) days at 20°C after cold storage.....	46
Table 3 Correlation between K value, SS and starting colour	49
Table 4 Colour of the pesto of Batch 1	51
Table 5 ANOVA of Batch 2	54
Table 6 ANOVA of Batch 2 without T3 and T6.....	59
Table 7 Correlation between K value and basil quality	60
Table 8 The average of L value for 3 first replicates and 9 replicates of C1-1.....	62
Table 9 ANOVA of Batch 3	63
Table 10 Correlation between (A) quality of basil and quality of pesto (B) treatments and the quality of basil and pesto, before and after ‘noisy’ data excluded	65
Table 11 Result of Batch 4	67
Table 12 ANOVA of Batch 5	68
Table 13 Result for basil quality of Batch 6	71
Table 14 Separated analysis of Batch 6	73
Table 15 Correlation between basil and pesto quality & treatment and basil quality ..	75
Table 16 Result for basil quality of Batch 7	77
Table 17 Result for pesto quality of Batch 7.....	77
Table 18 Correlation between variables.....	79

LIST OF FIGURES

Figure 1 Basil plant (<i>Ocimum basilicum</i> L.).....	1
Figure 2 Blackening on basil (Preliminary research, unpublished).....	20
Figure 3 Instruments of the experiment (A) O-ring placed on spread pesto and (B) reflectance spectrophotometer.....	26
Figure 4 Spectrophotometer Konica Minolta CM-700d	31
Figure 5 Three types of O-ring (1) small size (2) big o-ring side A (3) big o-ring side B..	33
Figure 6 Colour change of pesto in the ten indicators: (A) SCE of L (B) SCI of L (C) SCE of C (D) SCI of C (E) SCE of h (F) SCI of h (G) SCE of a* (H) SCI of a* (I) SCE of b* (J) SCI of b*	35
Figure 7 The example of (A) along fit curve with SS= 4.12 (B) noisy data curve with SS= 66.13.....	37
Figure 8 Temperature log of (A) fast cooling and (B) step down cooling.....	40
Figure 9 Comparison between h and L: (A) h of the first replicate (B) L of the first replicate (C) h of the second replicate (D) L of the second replicate (E) h of the third replicate (F) L of the third replicate.....	42
Figure 10 Three and two-dimensional representation of L, h, a* and b* value	43
Figure 11 Percentage of rotten leaves Batch 1.....	44
Figure 12 Percentage of weight loss of Batch 1.....	45
Figure 13 K value throughout days at 20°C after cold storage.....	46
Figure 14 Correlation between (A) Duration of cold storage and K value (B) Duration of cold storage and SS (C) Duration at 20°C after cold storage and K value (D) Duration at 20°C after cold storage and SS (E) K value and SS	49
Figure 15 Relationship between the quality of the basil leaves and pesto (A) K value vs rotten leaves that include data with high SS (B) K value vs rotten leaves exclude data with high SS. (C) K value vs weight loss that include data with high SS (D) K value vs weight loss that exclude data with high SS.....	50
Figure 16 The example of (A) usual pesto colour (B) 'odd' colour	51
Figure 17 All variables against cold storage time (A) Percentage of rotten leaves (B) weight loss (C) Blackening rate (D) Sum of squares.....	53

Figure 18 The relationship between starting colour and weight loss of (A) Batch 1 (B) Batch 2.....	57
Figure 19 The comparison between trend of K value of Batch 2 (A) include 'noisy' data (B) exclude 'noisy' data	59
Figure 20 The relationship between starting colour and weight loss of (A) Batch 1 (B) Batch 2 after the exclusion of 'Noisy' data	60
Figure 21 L value of (A) nine technical replicates of C1-1. (B) exclude the 'noisy' data.	62
Figure 22 All variables against duration of storage (A) Percentage of rotten leaves (B) Percentage of weight loss (C) K value (D) SS.....	63
Figure 23 Duration of cold storage against (A) percentage of rotten leaves) (B) percentage of weight loss	70
Figure 24 Duration of cold storage against K value	72
Figure 25 Connection between K value and (A) percentage of rotten leaves (B) percentage of weight loss.	74
Figure 26 Duration of cold storage against (A) percentage of rotten leaves and (B) percentage of weight loss	76
Figure 27 Duration of cold storage against K value	78
Figure 28 The relationship between K value and (A) percentage of rotten leaves (B) percentage of weight loss.	79
Figure 29 The combined result of Batch 6 and 7 (A) percentage of rotten leaves (B) percentage of weight loss (C) K value	81
Figure 30 The combined result of Batch 1,2 and 6 (A) percentage of rotten leaves (B) percentage of weight loss (C) K value	82
Figure 31 The combined result of water treatment in Batch 4,5, and 6 (A) Starting colour (B) K value	83