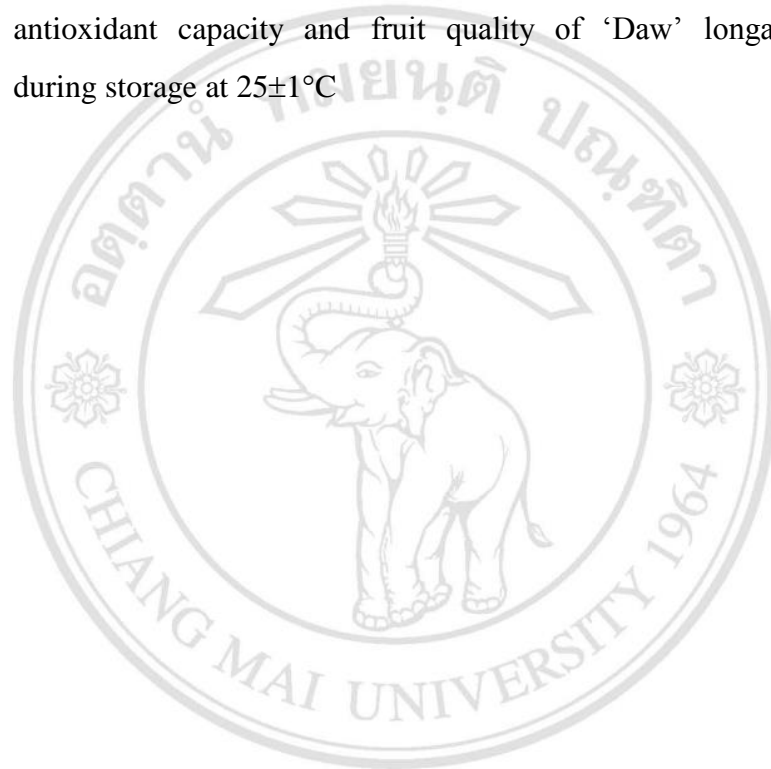


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LIST OF ABBREVIATIONS

[ATP]	adenosine triphosphate concentration
ABTS	2,2'-azinobis (3-ethylbenzothiazoline-6-sulfonic acid)
ABTS ^{•+}	2,2'-azinobis (3-ethylbenzothiazoline-6-sulfonic acid) radical
AD	after dipping
ADP	adenosine diphosphate
AF	after fumigation
AMP	adenosine monophosphate
ANOVA	analysis of variance
AOX	alternative oxidase
APX	ascorbate peroxidase
ASA	ascorbate
ASA-GSH cycle	ascorbate-glutathione cycle
ATP	adenosine triphosphate
BD	before dipping
BF	before fumigation
BI	browning index
°C	degree Celsius
Ca ²⁺	calcium ion
CAT	catalase
CCO	cytochrome <i>c</i> oxidase
Cd	cadmium
Cl ₂ (g)	gaseous chlorine
ClO ⁻	hypochlorite
ClO ₂	chlorine dioxide
cm	centimeter
COX	cytochrome <i>c</i> oxidase pathway
cv.	cultivar
DCPIP	dichlorophenolindophenol

LIST OF ABBREVIATIONS (continued)

DHA	dehydroascorbate
DHAR	dehydroascorbate reductase
DI	disease index
DNA	deoxyribonucleic acid
DPPH	1,1-diphenyl-2-picrylhydrazyl
DPPH•	1,1-diphenyl-2-picrylhydrazyl radical
DTNB	5, 5'-dithiobis (2-nitrobenzoic acid)
DTT	dithiothreitol
E	extinction coefficient
e ⁻	electron
EC	energy charge
EDTA	ethylenediaminetetraacetic acid
ETC	electron transport chain
F ₀ F ₁ -ATPase	F ₀ F ₁ -ATP synthase
FADH ₂	reduced flavin adenine dinucleotide
Fe ²⁺	ferrous ion
Fe ³⁺	ferric ion
FeCl ₃	ferric chloride
FeSO ₄	ferrous sulphate
FRAP	ferric reducing antioxidant power
FW	fresh weight
FDA	Food and Drug Administration
<i>g</i>	gravity
g	gram
G3P	glyceraldehyde-3-phosphate
G6PDH	glucose-6-phosphate dehydrogenase
GPX	glutathione peroxidase
GR	glutathione reductase

LIST OF ABBREVIATIONS (continued)

GSH	reduced glutathione
GSSG	oxidized glutathione
H ⁺	hydrogen ion
H ₂ O	water
H ₂ O ₂	hydrogen peroxide
H ₂ S	hydrogen sulfide
HCl	hydrochloric acid
HEPES	4-(2-Hydroxyethyl) piperazine-1-ethanesulfonic acid, N-(2-Hydroxyethyl) piperazine-N'-(2-ethanesulfonic acid)
HOCl	hypochlorous acid
HPLC	high performance liquid chromatography
KI	potassium iodide
KOH	potassium hydroxide
KPa	kilopascal
L	liter
L*	lightness
LSD	least significant differences
M	molar concentration
MDA	malondialdehyde
MDHA	monodehydroascorbate
MDHAR	monodehydroascorbate reductase
mg	milligram
MgCl ₂	magnesium chloride
MJ	methyl jasmonate
mL	milliliter
mM	millimolar
NADH	reduced nicotinamide adenine dinucleotide
NAD ⁺	oxidized nicotinamide adenine dinucleotide

LIST OF ABBREVIATIONS (continued)

NADPH	reduced nicotinamide adenine dinucleotide phosphate
NADP ⁺	oxidized nicotinamide adenine dinucleotide phosphate
NaCl	sodium chloride
NaClO ₂	sodium chlorite
NaHCO ₃	sodium hydroxide carbonate
NaOH	sodium hydroxide
nm	nanometer
nmol	nanomole
NO	nitric oxide
NTR	NADPH-dependent thioredoxin reductase
O ₂	oxygen
¹ O ₂	singlet oxygen
O ₂ ^{•-}	superoxide radical
OA	oxalic acid
OH [•]	hydroxyl radical
PGA	3-phosphoglyceric acid
pH	potential of hydrogen ion
Pi	inorganic phosphate
pM	picomolar
Pmf	proton-motive force
PPO	polyphenol oxidase
POD	peroxidase
PVPP	polyvinyl polypyrrolidone
Q	ubiquinone
QA	overall quality acceptance
QH ₂	ubiquinol
Qt	total ubiquinone
Q-cycle	ubiquinone cycle

LIST OF ABBREVIATIONS (continued)

RNA	ribonucleic acid
ROS	reactive oxygen species
SDH	succinate dehydrogenase
SOD	superoxide dismutase
SPSS	statistical packages for social science
TAC	total antioxidant capacity
TCA	trichloroacetic acid
TCA cycle	tricarboxylic acid cycle
TPTZ	2,4,6-tripyridyl-s-triazine
UV	ultraviolet
VIS	visible
v	volume
w	weight
µg	microgram
µL	microliter
µm	micrometer
µM	micromolar
µmol	micromole
6PGDH	6-phosphogluconate dehydrogenase

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LIST OF SYMBOLS

α	alpha
β	beta
γ	gamma
μ	micro
Σ	sigma
©	copyright
®	registered
™	trade mark
%	percent



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ข้อความแห่งการริเริ่ม

- 1) การเสื่อมสภาพของผลลำไยพันธุ์คอเกี่ยวข้องกับการเสื่อมถอยของสถานภาพรีดอกซ์ซึ่งมีผลลดการทำงานของเอนไซม์สำคัญในการผลิตพลังงานและการกำจัดอนุมูลอิสระระหว่างการเก็บรักษาที่อุณหภูมิ 25 ± 1 องศาเซลเซียส ความชื้นสัมพัทธ์ 82 ± 5 เปอร์เซ็นต์ เป็นเวลา 7 วัน
- 2) การรมด้วยก๊าซ ClO_2 ลดการเสื่อมสภาพของผลลำไยพันธุ์คอได้ โดยอาจเป็นผลจากการที่ก๊าซ ClO_2 ปรับสมดุลของสถานภาพรีดอกซ์ซึ่งมีผลกระตุ้นการทำงานของเอนไซม์สำคัญในการผลิตพลังงานและการกำจัดอนุมูลอิสระในระหว่างการเก็บรักษาที่อุณหภูมิ 25 ± 1 องศาเซลเซียส ความชื้นสัมพัทธ์ 82 ± 5 เปอร์เซ็นต์ เป็นเวลา 7 วัน



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STATEMENT OF ORIGINALITY

- 1) Senescence of 'Daw' longan fruit associates with the decline in redox status which relates with downregulation of enzymatic activities in energy production and free radical scavenging during storage at 25 ± 1 °C with $82\pm 5\%$ relative humidity for 7 days.
- 2) Fumigation with gaseous ClO_2 reduces pericarp browning of longan fruit cv. Daw. This might be due to the alteration of redox status which relates with upregulation of enzymatic activities in energy production and free radical scavenging during storage at 25 ± 1 °C with $82\pm 5\%$ relative humidity for 7 days.



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