EFFECT OF PLANTING DATES AND CALCIUM SPRAYING ON POSTHARVEST QUALITY OF HEAD LETTUCE

BY

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B.Sc. Agric. Sc. (Horticulture), Ain Shams University, 2001

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ABSTRACT

EHAB SALAH EL-DIN HAMED, Effect of Planting Dates and Calcium Spraying on Postharvest Quality of Head Lettuce. Unpublished M.Sc.Thesis, Ain Shams Univ., Faculty of Agriculture, Horticulture Dept., 2007.

This work was carried out at Nikla village, Giza governorate, during 2002 /2003 and 2003/2004 seasons to evaluate the effect of three planting dates (the first of each of October, November and December), and foliar application of 0 , 200 , 400 and 600 ppm chelated calcium on vegetative characteristics (fresh and dry weight, head size and number of leaves per plant) and percentage of tipburn injury of head lettuce cv. Limor, as well as several post harvest treatment such as different wrapping material (perforated poly propelin, stretch polyethylene and without wrapping) to prolonging the cold storage period of Limor Head lettuce Plants, and brown stem practices (hot water 50 C° /90 sec, acetic Acid (3% and 6%), citric acid (0.5%) , Na Cl 2%, oxalic acid 3%, Ca Cl_2 0.5 % and distaeld water (control)) for maximizing the yield and quality of harvested lettuce to be acceptable for exporting. The results indicated that seed sown on the first of December increased head size and Ca concentration in leaves compared to other sowing dates. But there were no significant diffrance among planting dates in head fresh and dry weight, number of leaves per plant and percentage of tipburn. Whereas foliar spray with chelated calcium reduced and prevented tipburn injury and increased percentage of Ca concentration in leaves but had no significant effect on fresh and dry weight and number of leaves per plant. Thus, foliar spray with 600 ppm chelated Ca in the three planting dates gave the best results and prevented tipburn incidence. On the other hand, wrapping with perforated poly

propelin gave the best result in head lettuce over visual quality and reducing decay percentage, pink rib and russet spotting. Whereas stem browning inhibitors reduced poly phenol oxidase activity and obtained good result, by using acetic acid 6% & hot water 50 °C /90 sec.

Keywords: Head lettuce, *Lactuca sativa* var., capitata. L., Chelated calcium, Foliar application, Planting dates, Tipburn, Wrapping, Stem browning, Poly phenol oxidase.

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Abbreviations used in this Thesis

Abbreviation	Meaning of abbreviation
A.O.A.C.	Association of official agricultural chemists
°C	Degree Celsius
Cm, Cms	Centimeter, Centimeters
D.W.	Dry Weight
Fed	Feddan = 4200m^2
g, gm	Gram
ha.	Hectare = 10000m^2
Kg	Kilogram
L.A.A.	L-Ascorbic acid
m^2	Square meter
mm	Millimeter
M.S.	M-static software
Max.	Maximum
Min.	Minimum
mg	Milligram
ml	Milliliter
R.H.	Relative humidity
SD	Sowing date
t	Ton
WL.	Weight loss
HDP	Head decay percentage
OVQ	Overall visual quality
PPO	Poly phenol oxidase
PAL	Phenylalanine ammonia-lyase
PPP	Perforated poly propelin
SPE	Stretch poly ethylene
RS	Russet spotting
O.D	Optical density
Cont.	Control
Sec	Second