

INTEGRATION OF SOME PRE-AND POST-HARVEST TREATMENTS FOR MANAGEMENT OF GRAY MOLD OF TABLE GRAPE

By

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B.Sc.Agric.Sc.(Plant Pathology), Ain Shams Univ. (2005)

A Thesis Submitted in Partial Fulfillment

Of

The Requirement for the Degree of

MASTER OF SCIENCE

in

Agricultural Sciences

(Sustainable Crop Protection)

Department of Plant Pathology

Faculty of Agriculture

Ain Shams University

2018

Approval Sheet

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Abstract

Al-Haythm Ahmad Ahmad Al-Essawy: Integration of some Pre- and Post-Harvest Treatments for Management of Grey Mould of Table Grape, Unpublished M.Sc. Thesis, Department of Plant Pathology, Faculty of Agriculture, Ain Shams University, 2018.

Grapes (*Vitisvinifera*) are attacked with a variety of fungal pathogens. The most distractive pathogen at cold-storage conditions is *Botrytis cinerea* Pres.: F. causing grey mould disease. This fungus has ruthless ability to invade the grapes at different phenological stages, *i.e.* during blooming and at véraison and through the handling and storing processes. Recently, *Botrytis cinerea* has showed a resistance to some fungicides *e.g.* Iprodione, as an impact of excessive use of fungicides on environment, so with new environmental sustainable measures, resulting in hard regulations toward pesticide residues, it was necessary to find alternative safe control tools to manage grey mould disease.

A survey for occurrence and frequency of most dominant fungal taxa associated with grape flowers and berries was carried out. *Botrytis cinerea* has the most occurrence and the highest frequency, and Beheira governorate has the greatest frequent of *B. cinerea*.

An *in-vitro* study has been done to achieve the most effective treatments to be applied in farms cultivating *Vitisvinifera* to meet exportation standards.

With Essential Oils, BCAs, GRAS compounds (Generally Recognised as a Safe) and physical treatment carried out, the cinnamon, clove, acetic acid and the potassium sorbate has the significant action against the mycelial growth of the fungus.

Studies have been carried out *In vivo* to investigate the potential load of *B. cinerea*, in three phenological stages of two tested cultivars; Flame seedless and Superior seedless, it has been investigated what the most phenological stage has the potential of highest load of *B. cinerea*. It was

found that at véraison of Flame Seedless has the most potential load of *B. cinerea*. Then the potential of *B. cinerea* to occupy different parts of grape clusters for Flame Seedless and Superior Seedless cvs., pedicles showed the most load of *B. cinerea*.

Treatments has been caried out with two strategies, 1stan application *in situ* conditions at preharvest for two seasons 2014/15 in both cultivars,Flame seedless and Superior seedless, showed that the cinnamon, clove oil, and potassium thio sulphate were the most effective treatment to manage the grey mould rot incidence in field or even in cold-storage condition. Meanwhile, the 2nd is post-harvest trails, which have concluded that vapourisation with cinnamon, clove or acetic acid showed the greatest effect to manage the mould incidence.

Key words: Grapes, *Botrytis cinerea*, Grey mould, Alternative safe control, GRAS, Plant Pathology, Postharvest, Sustainable agriculture

ACKNOWLEDGMENT

First and foremost, my deepest grateful and thanks to **Allah**, for his countless blessings.

Endless thanks and gratitude are due to my supervisory committee chair **Prof. Dr.Ahmed Ahmed Mosa, Prof. Dr.Medhat Kamel Ali, Dr. Ismail Rashid** for contributing thier time and effort in providing constructive criticism, advice and moral support throughout each step in my studies.

I am especially grateful to **ProfDr. Salah Al-Sayed Youssuf** - Former Minister of Agriculture and Land Reclamation (MALR)-for the countless hours of discussion, reviewing and preparation of my study. Especially for his relentless efforts to help me structure and shorten my ideas to make my work more valuble.

Finally, my deepest gratitude is due to my **family** for their continuous unconditional love, support, encouragement, and guidance throughout my life, without which I wouldn't have been able to finish this work.

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