

632.4

C11

1998

**IDENTIFICATION OF ~~FEDARON~~ SPECIES ASSOCIATED
WITH HIGH VALUE FRUITS, VEGETABLES
AND MISCELLANEOUS CROPS**

HONEY S. CARILES

Department of Biological Sciences

CAVITE STATE UNIVERSITY

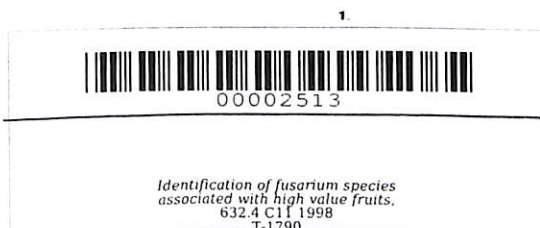
Indang, Cavite

April 1998

IDENTIFICATION OF *FUSARIUM* SPECIES ASSOCIATED
WITH HIGH VALUE FRUITS, VEGETABLES
AND MISCELLANEOUS CROPS

An Undergraduate Thesis Presented
to the Faculty of the
Department of Biological Sciences
Cavite State University
Indang, Cavite

In Partial Fulfillment
of the Requirements for the Degree of
Bachelor of Science in Biology
Major in General Biology



HONEY S. CABILES
April 1998

ABSTRACT

CABILES, HONEY S., April 1998. "Identification of *Fusarium* species Associated with High Value Fruits, Vegetables and Miscellaneous Crops". An undergraduate thesis, Bachelor of Science in Biology (major in General Biology), in coordination with the Department of Biological Sciences, College of Arts and Sciences, Cavite State University, Indang, Cavite.

Adviser: **Dr. Adelaida E. Sangalang.**

Diseased samples of high value fruits, vegetables and miscellaneous crops generally with yellows, wilt, blight and rot were collected and plated on PDA. CLA isolates were used to identify the recovered *Fusarium* species. The most prevalent *Fusarium* species isolated was *F. semitectum* which accounted for 48.04 percent of the total *Fusarium* species recovered. Other species isolated were *F. oxysporum* (15.69%), *F. subglutinans* (9.80%), *F. moniliforme* (9.80%), *F. solani* (9.80%), *F. equiseti* (4.90%) and *F. proliferatum* (1.96%).

All *Fusarium* species isolated have been implicated in various diseases of plants. The most important of which is *F. moniliforme*, since it has been involved in toxin production which could endangered the health of consumers.

Out of the seven isolated *Fusarium* species, five have been previously reported in the Philippines, while the two species, *F. subglutinans* and *F. proliferatum* are hereby reported as new record.

No new species was recovered.

TABLE OF CONTENTS

	Page
BIOGRAPHICAL DATA	iii
ACKNOWLEDGEMENT.....	iv
ABSTRACT.....	v
LIST OF TABLES.....	vii
LIST OF FIGURES	viii
LIST OF APPENDICES	ix
LIST OF APPENDIX FIGURE.....	x
INTRODUCTION	1
Importance of the study	3
Objectives of the study.....	3
Time and place of the Study.....	3
REVIEW OF LITERATURE	4
METHODOLOGY	13
Preparation of Media	13
Isolation of <i>Fusarium</i> species.....	14
Identification of <i>Fusarium</i> species.....	14
Preservation of Cultures	20
RESULTS AND DISCUSSION	21
SUMMARY, CONCLUSION AND RECOMMENDATION.....	29
BIBLIOGRAPHY	30
APPENDICES.....	37

LIST OF TABLES

Table		Page
1	Diseased samples of high value fruits, vegetables and miscellaneous crops	23
2	<i>Fusarium</i> species isolated from high value fruits, vegetables and miscellaneous crops	24
3	Distinguishing characteristics of <i>Fusarium</i> species isolated from high value fruits, vegetables and miscellaneous crops	25

LIST OF FIGURES

Figure	Page
1a Leaf samples with yellows.....	15
1b Leaf samples with yellows.....	16
2 Mangosteen leaf with blight	17
3 Banana fruit with rot.....	18
4 Asparagus with wilt	19
5 Pie graph of the distribution of <i>Fusarium</i> sp.	22

LIST OF APPENDICES

	Page
KEY TO IDENTIFICATION OF <i>FUSARIUM</i> SPECIES	38

LIST OF APPENDIX FIGURE

Figure		Page
1	Macroconidia and microconidia of <i>F. solani</i> on long phialides (100x)	42
2	Formation of microconidia in false-heads on CLA of <i>F. solani</i> (100x)	43
3	Macroconidia and microconidia of <i>F. oxysporum</i> on CLA (100x)	44
4	Formation of microconidi in false-heads on CLA of <i>F. oxysporum</i> (100x)	45
5	Macroconidia and microconidia on CLA of <i>F. proliferatum</i> (100x)	46

IDENTIFICATION OF *FUSARIUM* SPECIES ASSOCIATED WITH HIGH VALUE FRUITS, VEGETABLES AND MISCELLANEOUS CROPS ^{1/}

by:

HONEY SANO CABILES

^{1/}An undergraduate thesis presented to the faculty of the Department of Biological Science, College of Arts and Sciences, Cavite State University, Indang, Cavite, in partial fulfillment of the requirements for graduation with the Degree of Bachelor of Science in Biology (Major in General Biology) with Contribution No. CAS-Bi-98-006. Prepared under the supervision of Dr. Adelaida E. Sangalang.

INTRODUCTION

Fusarium belongs to the kingdom fungi, form-class Deuteromycetes which is known as class imperfect fungi (Fungi Imperfecti), since they lack sexual phase and reproduce only by means of conidia. *Fusarium* genus is the largest in the family *Tuberculariaceae* and is one of the most difficult to study of all fungal groups. Many species are particularly common in soils, and persist as chlamydospores or as hyphae in plant residues and organic matter. Several of them produce airborne conidia and are common colonizer of stem, leaves and floral parts of plants (Burgess, 1981). Conservation tillage, a farming practice which involved the preservation of infested plant residues are likely to increase the levels of inoculum of *Fusarium* plant pathogens (Summerell, 1988). Other species were able to produce mycotoxins like fumonisins that