

363.739 LABORATORY SCREENING OF BOTANICALS AGAINST
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Research Study

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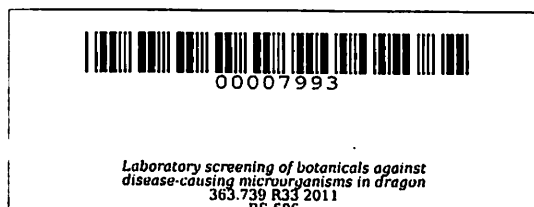
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LABORATORY SCREENING OF BOTANICALS AGAINST DISEASE- CAUSING MICROORGANISMS IN DRAGON FRUIT

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ABSTRACT

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Laboratory screening of 10 botanical plants against two fungi, namely: *Fusarium sporotrichioides* and *Colletotrichum gloeosporioides*, and two bacteria, namely; *Enterobacter cloacae* and *Serratia marcescens* was conducted using Inhibition Zone Technique. Chives (*Allium schoenoprasum*), garlic (*Allium sativum*), lemon balm (*Melissa officinalis*), lemongrass (*Cymbopogon citratus*), mugwort (*Artemisia vulgaris*), oregano (*Coleus amboinicus*), parsley (*Petroselinum crispum*), rosemary (*Rosmarinus officinalis*), tarragon (*Artemisia dracunculus*), and thyme (*Thymus vulgaris*) were evaluated. Commercial fungicide, bactericide and distilled water served as controls.

Results showed that botanical extracts contain fungicidal and bactericidal properties that inhibited the growth *in vitro* of the test pathogens. Lemongrass and parsley were the most effective against *Fusarium sp.* while garlic and mugwort were the most effective against *Colletotrichum sp.* Lemongrass and garlic were the most effective against *Enterobacter sp.* and *Serratia sp.*, respectively.

The above botanicals can control the diseases caused by the respective microorganism, therefore, could possibly be used as an alternative for both commercial fungicide and bactericide. The mechanism of action of a particular botanical seems to be specific to a particular organism. Thus, it is suggested to use the botanicals to a specific disease and corresponding causal organism.

TABLE OF CONTENTS

	Page
TITLE PAGE	i
APPROVAL SHEET	ii
BIOGRAPHICAL DATA.....	iii
ACKNOWLEDGEMENT	v
ABSTRACT	vi
LIST OF TABLES	x
LIST OF FIGURES	xi
LIST OF APPENDIX FIGURES	xii
LIST OF APPENDIX TABLES	xiii
INTRODUCTION	1
Statement of the Problem	2
Objectives of the Study	3
Importance of the Study	4
Scope and Limitation of the Study	4
Time and Location of the Study.....	5
Definition of Terms	5
REVIEW OF RELATED LITERATURE	
Description of Dragon Fruit	7
Three Varities of Dragon Fruit	7
Benefits of Dragon Fruit	8
Disease Occurrence in Dragon Fruit	9

Botanical/Medicinal Plants	12
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METHODOLOGY

Materials, Tools and Equipment	16
Collection and Maintenance of Botanicals	17
Preparation of Potato Dextrose Agar	19
Preparation of Nutrient Agar	19
Collection of Infected Dragon Fruit Parts	19
Isolation of Fungi by Planting of Infected Tissue	20
Isolation of Bacteria by Dilution Method	20
Preparation of Inocula	20
Culture and Standardization of Inocula	23
Preparation of Botanical Extracts	23
Assay of the Effectiveness of Botanical Extracts <i>In vitro</i>	23
Data Gathering	24
Experimental Design	24
Data Analysis	25
Schematic Diagram of the Procedure	26

RESULTS AND DISCUSSION

<i>Fusarium sporotrichioides</i>	27
<i>Colletotrichum gloeosporioides</i>	29
<i>Enterobacter cloacae</i>	30
<i>Serratia marcescens</i>	31

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary	35
Conclusion	36
Recommendations	37
LITERATURE CITED.....	38
APPENDICES	40

LIST OF TABLES

Table		Page
1	List of botanicals collected and screened for fungicidal and bactericidal property	17
2	Diameter of the zone of inhibition (mm) of <i>Fusarium sporotrichioides</i> as affected by different botanical extracts after two days of incubation.....	28
3	Diameter of the zone of inhibition (mm) of <i>Colletotrichum gloeosporioides</i> as affected by different botanical extracts after two days of incubation	30
4	Diameter of the zone of inhibition (mm) of <i>Enterobacter cloacae</i> as affected by different botanical extracts after two days of incubation.....	32
5	Diameter of the zone of inhibition (mm) of <i>Serratia marcescens</i> as affected by different botanical extracts after two days of incubation.....	33

LIST OF FIGURES

Figure		Page
1	Botanicals collected and screened for fungicidal and bactericidal property	18
2a	The colony morphology (a), microscopic appearance (b) and the symptoms of disease (c) caused by <i>Fusarium sporotrichioides</i> (top) and <i>Colletotrichum gloeosporioides</i> (bottom).....	21
2b	The colony morphology (a), microscopic appearance (b) and the symptoms of disease (c) caused by <i>Enterobacter cloacae</i> (top) and <i>Serratia marcescens</i> (bottom)	22

LIST OF APPENDIX FIGURES

Appendix Figure		Page
1	The experimental lay out in a completely randomized design	41
2	Isolates tested showing zones of inhibition measured after two days of incubation	42
3	The researchers seeding the plates with inoculum.....	43
4	The researchers transferring the impregnated discs with the extract to the spore seeded agar plates	44
5	The researchers measuring and recording the zone of inhibition ...	45

LIST OF APPENDIX TABLES

Appendix Table		Page
1	Raw data for the zone of inhibition (mm) of <i>Fusarium sporotrichioides</i> as affected by different botanical extracts after two days of incubation	46
2	Raw data for zone of inhibition (mm) of <i>Colletotrichum gloeosporioides</i> as affected by different botanical extracts after two days of incubation	46
3	Raw data for the zone of inhibition (mm) of <i>Enterobacter cloacae</i> as affected by different botanical extracts after two days of incubation	47
4	Raw data for the zone of inhibition (mm) of <i>Serratia marcescens</i> as affected by different botanical extracts after two days of incubation.....	47
5	ANOVA for the zone of inhibition (mm) of <i>Fusarium</i> sp., <i>Colletotrichum</i> sp., <i>Enterobacter</i> sp. and <i>Serratia</i> sp. showing the fungicidal and bactericidal properties of botanicals measured after two days of incubation	48

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INTRODUCTION

Dragon fruit (*Hylocereus undatus*) is a vine-like cactus with a stunningly beautiful fruit with intense color and shape, magnificent flowers, and a deliciously refreshing taste. It is known by different names as Pithaya, Strawberry pear, Belle of the Night, Chaca, and many others. Dragon fruit is a native plant from Mexico and Central America but is cultivated mainly in Southeast Asian countries. Introduced by the Spaniards in 1900, the fruit recently become a popular commodity in the Philippines particularly among farmers in Cavite because of its production and commercial value such as food, beverage, dessert, wine, and amazingly health benefits (Flores, 2007).

Dragon fruit diseases have been reported to be due to a number of causes affecting its production. The soft rot bacterial pathogen, *Erwinia carotovora*, was reported threatening dragon fruit plantation in Malaysia (Cheah & Zulkarnain, 2008). Likewise, the fungus, *Fusarium oxysporum*, infecting the fruit and stem, was reported in Columbia where plantation is severely affected (Ganasena et al., 2006). In the