List of Abbreviations

A. nilotica	*Acacia nilotica*
A. flavus	*Aspergillus flavus*
AFs	Aflatoxins
An. Gambiae	*Anopheles gambiae*
A. niger	*Aspergillus niger*
B. zonata	*Bactrocera zonata*
BO	Basil oil
C. albicans	*Candida albicans*
C. capitata	*Ceratitis capitata*
C. citratus	*Cymbopogon citratus*
C. giganteus	*Cymbopogon giganteus*
C. nervatus	*Cymbopogon nervatus*
C. proximus	*Cymbopogon proximus*
C. schoenanthus	*Cymbopogon schoenanthus*
DMSO	Dimethyl sulfoxide
Eo	Essential oils
FAO	Food and agricultural organization
F. moniliforme	*Fusarium moniliforme*
GC-MS	Gas chromatography–mass spectroscopy
G. mellonella	*Galleria mellonella*
GWM	Greater wax moth
IPM	Integrated pest management
L. angustifolia	*Lavandula angustifolia*
L/D	Light/dark
L/i.d	Length / internal distance
MIC	Minimum inhibitory concentration

M. liliflora	*Magnolia liliflora*
M.alternifolia	*Melaleuca alternifolia*
ME	Methyl eugenol
NIST	National institute of standards and technology
O. gratissimum	*Ocimum gratissimum*
PDA	potato dextrose agar
PFF	peach fruit fly
R. officinalis	*Rosmarinus officinalis*
RH	Relative humidity
S.litura	*Spodoptera litura*
S. sclerotiorum	*Sclerotinia sclerotiorum*
S.zeamais	Sitophilus zeamais
T. occidentalis	*Thuja occidentalis*
US	United States

Acknowledgement

To esteem the highness of almighty Allh, I feel myself inept as my words have lost their expressions, knowledge is lacking and decision is too short to express gratitude in the rightful manner to the blessings and support to Allh Almighty whose help had flourished my ambitions and helped me to attain goals.

My first, debt of deep gratitude must go to my professor virtuous **Prof. Dr. Hesham Zaki Ibrahim** Professor of Pesticide Chemistry and Toxicology, Department of Environmental Studies, Institute of Graduate Studies and Research, Alexandria University, for the suggestion of the research idea, his close supervision during the experimental work, immense advices, for the continuous support and valued suggestions through my research. I also express my warm thanks to my professor virtuous the **late Prof. Dr. Fatma Fahim Rashed,** Professor of Fruit Fly Research Section, Plant Protection Research Institute, Agriculture Research Center, Sabahia, for her kind support and guidance toward the completion of this research project. my warm thanks to **Dr. Moustafa Mohamed Abbassy,** Associate Prof. of Environmental Chemistry and Pesticide, Department of Environmental Studies, Iam heartily indebted also, for devoting much of his time and effort in the supervision of this work, for his guidance, generosity, spirit, encouragement and fruitful criticism during the preparation of this research.

Special thanks to distinguished for my professors to work Agricultural Research Center, Sabahia, Alexandria. and especially **Prof. Dr. Nadia Abd El-Wahab El-Safwani**, Professor of Plant Pathology, on the continued support and effort cherished me and allowing me to work in plant pathology and the use of existing hardware lab laboratory, Words fail to Thanks giving, Valchukr them a thousand thanks.

Contents

Title	Page No.
i. List of Abbreviations	
ii. Acknowledgement	
iii List of Tables	
iv List of Figures	
I- Introduction	1
Aim of the work	4
II- Review of literature	5
1. Natural products (Benefits - Characterize – Uses).	7
1.1 Herbal plants	11
1.1.1 *Acacia nilotica*.	11
1.1.2 *Cymbopogon proximus*.	11
2. Phytochemical analysis of plants extracts.	12
2.1 Phytochemical analysis of *Acacia nilotica* extract.	13
2.2Phytochemical analysis of *Cymbopogon proximus* extract.	16
3. Insecticid activity.	19
3.1. *Acacia Nilotica* extract.	19
3.2 *Cymbopogon proximus* extract.	21
4. Insects.	22
4.1*Ceratitis capitate*.	22
4.2 *Bactrocera zonata*.	26
5. Fungi activity.	28
5.1 Antifungal activity of *Acacia* extract.	29
5.2. Antifungal activity of *Cymbopogon proximus* extract.	33
5.3 Pathogenic *Aspergillus flavus* fungus.	35
5.3.1 Antifungal activity of plant extracts against *Aspergillus flavus*.	36

5.4 Pathogenic *Sclerotinia sclerotiorum* fungus.	37
5.4.1 Antifungal activity of plant extracts against *Sclerotinia sclerotiorum*.	38
III- Materials and Methods	41
1. Materials	42
1.1 Tested Plants.	42
1.2 Tested pests.	43
1.3 Tested fungi.	44
1.4 Gas chromatography-mass spectrometry (GC-MS).	46
1.5 Chemicals.	46
1.5.1 For phytochemical analysis.	46
1.5.2 Solvents.	46
1.5.3 Insecticide used for toxicity bioassay.	47
1.5.4 Fungicide used for toxicity bioassay.	48
2. Methods.	49
2.1 Preparation of plant extracts.	49
2.2 Qualitative phytochemical analysis.	49
2.3 Fractionation of crude extracts by column chromatographic.	51
3. Toxicity bioassay.	51
3.1 Wild strain.	51
3.2 Laboratory strain.	51
3.3 Insecticidal activity of plant extracts against *C. capitata* and *B. zonata*.	52
3.3.1 Adult stage.	52
3.3.2 Larval stage	53
3.3.3 Egg stage.	53
3.4 Bioassay by using dimethoate insecticide.	53
3.5 Fungus strains for bioassay.	54
3.5.1 Preparation of colony fungus for bioassay.	54
3.5.2 Antifungal bioassay by using plants extracts.	54

3.5.3 Antifungal bioassay by using Mancozeb 85%	55
IV. Results and Discussion	57
1. Chemical composition of investigated plants.	58
2. Gas chromatography–mass spectroscopy (GC-MS) analysis.	60
3. Insecticidal activity of the plant extracts.	78
3.1Adult stage of *C. capitate.*	78
3.2 Adult stage of *B. zonata*	83
3.3 Larvae stage of *C. capitate*.	87
3.4 Larvae stage of *B.zonata.*	87
3.5 Egg stage of *C. capitate* and *B. zonata*.	94
3.6Toxicity one of insecticides to adult stage of *C. capitate* and *B. zonata*	97
4. Fungicidal activity of the plants extracts.	103
4.1. Against *A. flavus* fungus growth.	103
4.2. Against *S. sclerotiorum* fungus growth.	106
4.3. Bioassay of Mancozeb Fungicide.	109
V-Summary.	114
1. *Acacia nilotica*	114
2. Cymbopogon proximus.	115
3. Phytochemical screening of the plants extracts.	115
4 . Insecticidal effect of the plant extracts.	115
4.1Adult stage of *C. capitate.*	115
4.2 Adult stage of *B. zonata*.	116
4.3 Larvae stage of *C. capitate*	116
4.4 Larvae stage of *B.zonata.*	116
4.5 Egg stage of *C. capitate* and *B. zonata*.	117
4.6. Toxicity one of insecticides to adult stage of *C. capitate* and *B. zonata*.	117
5. Fungicide effect of the plants extracts.	118
5.1. Against *A. flavus* fungus growth.	118

5.2. Against *S. sclerotiorum* fungus growth.	118
5.3 Fungicidal bioassay by using mancozeb.	118
VI- Conclusion and Recommendation.	119
VII-References	122
Arabic Summary	136

List of Tables

Table No.	Title	Page No.
(1)	Specific classification for experimental plants.	43
(2)	Specific classification for experimental pests.	44
(3)	Specific classification for experimental fungi.	45
(4)	Phytochemical Screening of the plant extracts	58
(5)	Identification compounds were carried out by (GC-MS) analysis on the fractions extracts from essential oils of *A. nilotica*.	67
(6)	Identification compounds were carried out by (GC-MS) analysis on the fractions extracts from essential oils of *C. proximus*.	76
(7)	Insecticidal activity of different concentrations of pods extract of *A. nilotica* on adults of *C. Capitata*.	80
(8)	Insecticidal activity of different concentrations of leaves extract of *C. proximus* on adults of *C. Capitata.*	80
(9)	LC_{50} values and their 95% confidence limits for adults of *C. capitata* exposed to *A. nilotica* extract after 24hrs, 36hrs, 48hrs and 60hrs exposure time.	81
(10)	LC_{50} values and their 95% confidence limits for adults of *C. capitata* exposed to *C. proximus* extract after 3 hrs, 6hrs and 12hrs exposure time.	81
(11)	Insecticidal activity of different concentrations of pods extract of *A. nilotica* on adults *B. zonata*.	84
(12)	Insecticidal activity of different concentrations of leaves extract of *C. proximus* on adults *B. zonata*	84
(13)	LC_{50} values and their 95% confidence limits for adults of *B. zonata* exposed to *A. nilotica* extract after 24hrs, 36hrs, 48hrs and 60hrs exposure time.	85
(14)	LC_{50} values and their 95% confidence limits for adults of B. zonata exposed to *C. proximus* extract after 3 hrs, 6hrs, 12hrs and 24hrs exposure time.	85
(15)	Larvicidal effect of different concentrations of *A. nilotica* extract on larvae of *C. Capitata*	88

(16)	Larvicidal effect of different concentrations of *C. proximus* extract on larvae of *C. Capitata*.	88
(17)	LC_{50} values and their 95% confidence limits for larvae of *C. Capitata* exposed to *A. nilotica* extract after 48 hrs, 72hrs, 4days and 5days of exposure time.	89
(18)	LC_{50} values and their 95% confidence limits for larvae of *C. Capitata* exposed to *C. proximus* extract after 48 hrs, 60hrs and 72hrs of exposure time.	89
(19)	Larvicidal efficiency of different concentrations of pods extract of *A.nilotica* on larvae of *B.zonata.*	91
(20)	Larvicidal efficiency of different concentrations of leaves extract of *C.proximus* on larvae of *B. zonata*	91
(21)	LC_{50} values and their 95% confidence limits for larvae of *B. zonata* exposed to *A. nilotica* extract after 48 hrs, 72hrs 4days and 5days of exposure time.	92
(22)	LC_{50} values and their 95% confidence limits for larvae of *B. zonata* exposed to *C. proximus* extract after 60 hrs, 72hrs, 4days and 5days of exposure time.	92
(23)	Ovicidal activity of different concentrations pods extract of *A.nilotica* on egg hatchability for both *C. Capitata* and *B. zonata*.	95
(24)	Ovicidal activity of of different concentrations of leaves extract of *C.proximus* on egg hatchability for both *C. Capitata* & *B. zonata*	95
(25)	Toxic effect of Dimethoate (40%) insecticide with respect to adult *C. capitate.*	98
(26)	Toxic effect of Dimethoate (40%) insecticide with respect to adult *B. zonata.*	98
(27)	LC_{50} values and their 95% confidence limits for adult *C. capitate* exposed to Dimethoate (40%) insecticide after 4hrs, 6hrs, 8hrs and 10hrs exposure time.	99
(28)	LC_{50} values and their 95% confidence limits for adults of *B. zonata* exposed to Dimethoate (40%) insecticide after 8 hrs, 12hrs, 16hrs and 20hrs exposure time.	99
(29)	Antagonistic effect of different concentrations of *A.nilotica* extract on the *A. flavus* fungus growth.	104
(30)	Antagonistic effect of different concentrations of *C. proximus* extract	104

	on the *A. flavus* fungus growth	
(31)	Antagonistic effect of different concentrations of *A. nilotica* extract on *S. sclerotiorum* fungus growth.	106
(32)	Antagonistic effect of different concentrations of *C. proximus* extract on *S. sclerotiorum* fungus growth**.**	107
(3٣)	Antagonistic effect of different concentrations of fungicide Mancozeb-85% on *A.flavus* fungus growth.	109
(34)	Antagonistic effect of different concentrations of fungicide Mancozeb-85% on *S.sclerotiorum* fungus growth.	109

List of Figures

Figure No.	Title	Page No.
(1)	Dried pods of *Acacia nilotica*	42
(2)	Dried Leaves of *Cymbopogon proximus*	42
(3)	Adult of *Ceratitis capitata*	44
(4)	Adult of *Bactrocera zonata*	44
(5)	*Aspergillus flavus*	45
(6)	*Sclerotinia sclerotiorum*	45
(7)	The Chromatography fractions with different solvents on pods of *A. Nilotica* extracts	61
(8)	The Chromatography fractions with different solvents on leaves of *C. Proximus* extracts	61
(9)	GC chromatogram of fractions (1, 2 and 3) of *A.Nilotica* extract.	62
(10)	GC chromatogram of fractions (4, 5 and 6) of *A.Nilotica* extract.	63
(11)	GC chromatogram of fraction (7) of *A.Nilotica* extract.	64
(12)	Mass Spectrum of the identified compounds for fractions (1 and 2) of *A. Nilotica* extract.	64
(13)	Mass Spectrum of the identified compounds for fraction(3) of *A. Nilotica* extract.	65
(14)	Mass Spectrum of the identified compounds for fractions (4 and 5) of *A. Nilotica* extract.	66
(15)	Mass Spectrum of the identified compounds for fractions (6 and 7) of *A. Nilotica* extract.	67
(16)	GC chromatogram of fractions (1, 2 and 3) for *C. Proximus* essential oil extract.	69
(17)	GC chromatogram of fractions (4, 5a and 5b) for *C. Proximus* essential oil extract.	70

(18)	GC chromatogram of fractions (6a, 6b and7) for *C. Proximus* essential oil extract.	71
(19)	Mass Spectrum of the identified compounds for fractions (1 and 2) of *C. Proximus* essential oil extract.	72
(20)	Mass Spectrum of the identified compounds for fractions (3 and 4) of *C. Proximus* essential oil extract.	73
(21)	Mass Spectrum of identified compounds for fractions (5a, 5b, 6a and 6b) of *C. Proximus* essential oil extract.	74
(22)	Mass Spectrum of the identified compounds for fraction (7) of *C. Proximus* essential oil extract.	75
(23)	Insecticidal activity of different concentrations of pods extract of *A.nilotica* on adults of *C.Capitata*.	82
(24)	Insecticidal activity of different concentrations of leaves extract of *C. proximus* on adults of *C. Capitata.*	82
(25)	Insecticidal activity of different concentrations of pods extract of *A.nilotica* on adults of *B. zonata*	86
(26)	Insecticidal activity of different concentrations of leaves extract of *C.proximus* adults *B. zonata* .	86
(27)	Larvicidal activity of different concentrations of pods extract of *A.nilotica* on larvae of *C. Capitata*	90
(28)	Larvicidal activity of different concentrations of leaves extract of *C. proximus* on larvae of *C. Capitata*	90
(29)	Larvicidal activity of different concentrations of pods extract of *A.nilotica* on larvae of *B. zonata*	93
(30)	Larvicidal activity of different concentrations of leaves extract of *C. proximus* on larvae of *B. zonata*	93
(31)	Ovicidal activity of different concentrations extracts of *A.nilotica* on egg hatchability of both *C. Capitata* and *B. zonata*.	96
(32)	Ovicidal activity of different concentrations extracts of *C.proximus* on egg hatchability of both *C. Capitata* and *B. zonata*.	96
(33)	Toxic effect of Dimethoate (40%) insecticide with respect to adult *C. capitate.*	100
(34)	Toxic effect of Dimethoate (40%) insecticide with respect to adult *B. zonata.*	100
(35)	Antagonistic effect of different concentrations of *A. nilotica* and *C. proximus* extracts on *A. flavus* fungus growth	105
(36)	Antagonistic effect of different concentrations of *A. nilotica* extracts	105

	on *A. flavus* fungus growth.	
(37)	Antagonistic effect of different concentrations of *C. proximus* extracts on *A. flavus* fungus growth.	105
(38)	Antagonistic effect of different concentrations of *A. nilotica* and *C. proximus* extracts on *S. sclerotiorum* fungus growth.	107
(39)	Antagonistic effect of different concentrations of *A. nilotica* extracts on *S. sclerotiorum* fungus growth	108
(40)	Antagonistic effect of different concentrations of *C. proximus* extracts on *S. sclerotiorum* fungus growth.	108
(41)	Antagonistic effect of different concentrations of fungicide Mancozeb-85% on both *A.flavus* and *S. sclerotiorum* fungi growth.	110
(42)	Antagonistic effect of different concentrations of fungicide Mancozeb-85% on *A.flavus* funus growth.	110
(43)	Antagonistic effect of different concentrations of fungicide Mancozeb-85% on *S. sclerotiorum* fungus growth.	110

V-Summary.

The objective of this research are, evaluate the insecticidal, larvicidal and ovicidal activities of some herbal plants found in Egypt such as *Acacia nilotica* and *Cymbopogon proximus*. Ethanol extracts for both *A. nilotica* and *C. proximus* were examined against Mediterranean fruit fly (*Ceratitis capitate*) and Peach Fly (*Bactrocera* zonata). Also evaluate the fungicidal activities of same extracts against *Aspergillus flavus* and *Sclerotinia sclerotiorum* fungi growth. On the basis of evaluation of the effectiveness of the active chemicals found among plant components.

1. *Acacia nilotica*.

The genus Acacia comprises about 1380 species worldwide, approximately 130 in Africa. Is a subtropical genus with species abundant throughout Asia, Australia, Africa and America. *A.nilotica* occurs naturally and is imperative in traditional rural systems. *A. nilotica* is an imperative multipurpose plant, It is a medicinally and economically important plant. They are pod-bearing and leaves typically bearing large amounts of tannins and condensed tannins that historically in many species found use as pharmaceuticals and preservatives. The flowers are very fragrant and are often made in to an essential oil that is used in aromatherapy.

2.*Cymbopogon proximus.*

Cymbopogon, commonly known as lemongrass is a genus of about 45 species of grasses, a member of the family Gramineae. It is a perennial herb native to warm temperate and tropical regions, it grows in Southern Egypt. *C.proximus* is a plant of considerable economic importance which cultivated for commercial purpose as industrial raw materials to cosmetic and insecticide factories also the entire dried herb has been used in folk medicine.

3.Phytochemical screening of the plant extracts.

Phytochemical procedures for screening of particular chemicals using chemical method as well as gas chromatography - mass spectrometry (GC-MS) analyses were indicated many substances qualitatively identified (e.g., alkaloids, terpenes, steroids, tannins, phenols and flavonoids) originally thought in different fractions of the plant extracts. The preliminary phytochemical tests were carried out on the ethanol plant extracts for pods of *A.Nilotica* and leaves of *C. Proximus*. The results of this part of study revealed that the presence of phytochemicals constituent's alkaloids, flavonoids, terpenoids, tannins and steroids which considered as active chemical constituents in both two plants A. Nilotica and C. Proximus extracts.

4. Insecticidal effect of the plant extracts.

4.1 Adult stage of *C. capitate.*

On the other hand, the tested plant extracts have promising repellent and insecticidal activities against tasted insects. Where the results demonstrates that the essential oils of *A.nilotica* at lowest concentration 100 ppm caused approximately, 3.33% mortality in adult *C. capitate* after 12h compared to 100 % mortality at the highest concentration 500 ppm after 48h. While essential oil of *C. proximus* at lowest concentration 10 ppm caused approximately, 13.33% mortality in adult *C. capitate* after 6h compared to 100% mortality at the highest concentration 30 ppm after 6h. The mortality percentages obtained revealed that the *C. proximus* essential oils is more toxic to adults of *C. capitate* than other essential oil *A.nilotica* .

4.2 Adult stage of *B. zonata.*

The results shown presence of repellent and toxic efficacy for both essential oils with respected to adults of *B. zonata*. Where the lowest mortality was 6.67% after 12h at the concentration 100ppm, while, the highest adults mortality was 100% after 60h at the concentration 500ppm for *A.nilotica* extract. While *C. proximus* extract, at lowest concentration 10 ppm caused 3.33 % mortality after 3h of exposure compared to 100 % mortality at the highest concentration 30 ppm after 12h of exposure. Comparison of the estimated LC_{50} values of essential oils indicated that *C. proximus* essential oils is more toxic to adults of *B. zonata* than other essential oil *A.nilotica.*

4.3 Larvae stage of *C. capitate*

The knockdown effects of the extracts were tested on larvae of *C. capitate* and *B. zonata* in separate vitro bioassay experiments. The results shown that extract of *C.proximus* was effectiveness more than *A.nilotica* extract. Where the percentage of larval mortality was 3.33% with 200ppm of *A.nilotica* extract after 48h of exposure and 100% with 1000ppm after 72h of exposure. Moreover, the percentage of larval mortality was 6.67% with 200ppm of *C.proximus* extract after 48h of exposure and 100% with 1000ppm after 24h of exposure. The observations during the experiment appeared the larval period and total development period were found to be prolonged with both extracts.

4.4 Larvae stage of *B.zonata.*

Data revealed that, the larvicidal activity of the tested extract *A. nilotica* on larvae of *B.zonata* through LC_{50} values. Where lowest concentration 200 ppm caused approximately, 6.67% mortality in larvae *B.zonata* after 72h compared to 100% mortality at the highest concentration 1000 ppm after 72h. But with respect to the extract of *C. proximus,* the lowest concentration 200 ppm caused approximately 10% mortality for *B. zonata* larvae after 60h compared to 100% mortality with highest concentration 1000 ppm after 48h.

4.5 Egg stage of *C. capitate* and *B. zonata*.

The ovicidal activity tests of plants extracts explain that the average percentage of the egg hatch for both *C. Capitata* and *B. zonata* were decreased gradually by increasing the concentration at all treatments as compared with the untreated control. The median lethal concentration LC_{50} of *A. nilotica* extract with *C. Capitata* eggs was 388.18 ppm and for *B. zonata* was 540.29 ppm. While the LC_{50} values for *C.proximus* extract were 74.51ppm with respect to *C. Capitata* and 107.99ppm for *B. zonata*. It could be observed that the *C. Capitata* eggs more susceptible than *B. zonata* eggs.

4.6. Toxicity test for one of insecticides to adult stage of *C. capitate* and *B. zonata.*

- **Dimethoate (40%)**

Adult stage for both *C. capitate* and *B. zonata* were treated with different concentrations of dimethoate 40%. The results were indicate that the maximum percent of mortality for adult *C. capitate* was 66.67% at 0.1ppm after 24h , was 100% at 3.7ppm after 6h. These findings suggest that concentrations of test substance affected on degree of toxicity, mortality speed, and mortality rates. But, with respect to adult *B. zonata* , the minimum mean of mortality was 3.33% after 8h and the maximum mean of reduction was100% after 12h with respect to 3.7ppm. Thus its clear from the results that the adult of *C. capitate* more susceptible than the adult of *B. zonata* with respect to dimethoate 40% exposure.

5. Fungicide effect of the plants extracts.

5.1. Against *A. flavus* fungus growth.

Under vitro conditions, the results obtained explained that the antagonistic efficacy of ethanolic extracts of *A. nilotica* causes percentage of growth inhibition ranging from 4.05 to 37.48% when the concentration increased from100 to 1000ppm. While percentage of growth inhibition for ethanolic extracts of *C.proximus* were ranging from 10.5 to 83.96% when the concentration increased from100 to 1000ppm, all antifungal results were compared with the untreated control. *A.nilotica* extract was least effective, as it did not cause substantial reduction in growth of the pathogen fungi as compared to check *C.proximus* extract.

5.2. Against *S. sclerotiorum* fungus growth.

The data obtained revealed that the two extracts from tested plants possess antifungal activities against growth of the tested fungal strain *S. sclerotiorum*. Where the minimum inhibitory concentration 100 ppm of *A. nilotica* causes 13.85% of inhibition while maximum inhibitory concentration 1000 ppm causes 60% of inhibition. But for another essential oils of *C. proximus* the minimum concentration 100 ppm causes 18.32% of inhibition and maximum concentration 1000ppm causes 77.84% of inhibition. Also the results of the investigations show that the inhibition activity of essential oil of *C. proximus* for growth of mycelium *S. sclerotiorum* was not much different from inhibition activity of *A. nilotica*.

5.3 Fungicidal bioassay by using mancozeb.

Mancozeb 85% was tested against pathogen fungi *A.flavus* and *S. sclerotiorum* which caused heavy losses to many agricultural crops. Resulting data explained that, Mancozeb had completely inhibited the growth of the pathogen fungi *A. flavus* and *S. sclerotiorum* at the concentrations 2500, 1250 and 800 ppm.

VI- Conclusion

1. Qualitative chemical and GC-MS scanning methods identified many substances (e.g., alkaloids, terpenes, steroids, tannins, phenols and flavonoids) in different fractions of the plant extracts. These secondary metabolites are capable of causing varied physio-chemical effects. So the selected herbal plants play a vital role in preventing various pests. The anti-insect and anti-fungal activities of the herbal plants are due to the presence of the above mentioned secondary metabolites. Herbal plants which were used for discovering and screening of the phytochemical constituents are very helpful for the manufacturing of new natural pesticide.

2. The toxicity of ethanol extracts of *A. nilotica* and *C.proximus* proved variable great repellent and insecticidal properties of *A. nilotica* and *C.proximus* extracts against the adults of C. *capitate* and *B. zonata* when compared with untreated control under laboratory conditions. Such activities were attributed to the various secondary metabolites detected in the plant. Accordingly, the ethanolic pods extract of *A. nilotica* at 500ppm concentration and the ethanolic seeds extract of *C.proximus* at 30ppm were the best treatment showing knockdown effect against the adults of *C. capitate* and *B. zonata* especially with *C.proximus* extract which appear more effective.

3. The larvicidal potential of (*A. nilotica* and *C. proximus*) extracts were evaluated against sensitive and resistant larvae of both *C. Capitata* and *B.zonata*. Both essential oils were exhibited larvicidal activity at various high concentrations, the effectiveness of *C.proximus* extract show slightly more than the effectiveness of *A.nilotica* extract.

4. Ovicides based on plant essential oils have demonstrated efficacy for both *A. nilotica* and *C. proximus* extracts against egg hatchability for both *C. Capitata* and *B. zonata* . Results exhibited that the *C. Capitata* eggs more susceptible than *B. zonata* eggs. Also the results revealed that the essential oils of *C. proximus* more effective than *A. nilotica* essential oils against egg hatchability.

5. The findings of present investigation clearly indicate that the antifungal activity vary with the species of the plants and concentrations of the extracts used. The present research concluded that the ethanol extracts of *A. nilotica* and *C. proximus* showed promising antifungal activity against plant fungal pathogens *A. flavus* and *S. sclerotiorum* when compared to untreated control. In addition to the extract of *C. proximus* showed maximum zone of inhibition against fungal pathogens when compared to *A. nilotica,* where the rate of mycelial growth inhibition was increased by increasing the concentration.

- From the present studies, the following aspects are recommended:

1. Increasing awareness of health and educational notify the use of pesticides and the need to replace natural products

2. The phytochemical compounds identified by our study in the selected herbal plants are important and have commercial interest to pesticide companies towards the possibilities for the manufacturing of the new natural products for treatment of various crops pests. Botanical pesticides are naturally derived that they are safe to use and can be consumed by humans.

3. The results show that *A. nilotica* and *C. proximus* extracts which have traditionally used can gain place as a potentially alternative source for developing novel insecticides especially *C.proximus* extract can formulated at various forms in order to used for control of adult of insects and fungi growth.