

respectively (Table2). When the two tested pathogens combined at the sub-lethal does the LC50 for the corresponding insect pests recorded were significantly decreased to 46, 69 and 75 g/L for *O. nubilalis*, *S. cretica* and *C. agamemnon* ., respectively (Tabe3). The same results obtained by Sabbour and Abdel-Rahman (2007) reported that under laboratory conditions results showed that the LC₅₀ of *Phyllotretacruciferaem*, *Pegomyiahyoascami* and *Cassidavittataof* the tested fungi *Verticillium lecanii* (V.l), *Beauveribrongniartitii* (B.r) and *Paecilomyces fumosoroseus* (P.f), respectively against the three pests ranged between 5.4x10⁶ and 1.43x10⁷ spores/ml. Satisfactory results with the entomopathogenic fungi were reported by Sharaf El-Din (1999) and Sabbour and Ismail (2001). Sabbour and Abd El-Aziz (2002) as they found that the fungi; *B. bassiana* and *M. anisopliae* reduced the LC₅₀ of *S. littoralis* under laboratory conditions. Data in Table 4 ,show that the application of the bioinsecticides which affected on decreasing the infestation. The number of infestations of *O. nubilalis* significantly decreased to 23±2.2 and 26±2.1 individuals after treatment with *B. brongniartii* after 50 day as compared to 69±4.3 and 72±3.1 individual in the control during both two seasons 2012 and 2013. In all treatments the number of corn pests were significantly decreased. *Chiloagamemnon* infestation decreased to 48±1.3 and 36±3.3 individuals after 90 days as compared to 96±3.3 and 98±1.3 in the control plots in both two seasons. When combined the two pathogens tested against the target pests the results showed that, after 90 days the infestations recorded 24±6.2, 23±2.4 and 27±5.3 individuals for *O. nubilalis*, *S. cretica* and *C. agamemnon*., respectively during season 2012. During season 2013 the corresponding infestations for the these pests recorded 18±1.2, 24±2.5, and 27±4.5 individuals., respectively (Table 4). In all treatments *B. brongniartii* + imidacloprid gave the pest results for controlling the target pests. The same results obtained by Sabbour 2003,(20014a&b), 2013. Magda Mahmoud Sabbour and Shadia El-Sayed Abd-El-Aziz. 2014, Magda Sabbour, 2001, Sabbour (2002 a &b), Magda Sabbour and Ismail 2002, Sabbour and Sahab 2005 & 2007, 20011. The obtained results are similar to other studies carried out by Castillo *et al.* (2000) and Espinet *al.* (1989) on their work on *C. capitata* and increased the yield. These results agree with Sabbour & Shadia Abd El-Aziz, (2002 and 2010) who proved that the application with bioinsecticides increased the yield and decreased the infestation with insect pests. Also, results were in accordance with Castillo *et al.* (2000) who reported that the virulence of *B. bassiana* against *C. capitata* ranged between 8 to 30% and decrease the infestation among the olive fruits. Espinet *al.* (1989) recorded that *C. capitata* mortality ranged between 69 and 78% after bioinsecticides treatments. The same findings obtained by Sabbour (2002 a &b), Magda Sabbour and Ismail 2002, Sabbour and Sahab 2005 & 2007, 20011. The same results obtained Sabbour 2006, Sabbour and Abd el Aziz 2007, Sabbour, 2007, Sabbour and Abbas, 2007. Sabbour and Hany, 2007, Sabbour, 2008. Asmaa et al 2009. Sabbour 2014 control *Tuta absoluta* by three microbial control agents *Bacillus thuringiensis*(B.t)var *kurstaki*; *Beauveria bassiana*(B.b) which increase the yied. Sabbour 2014 control *T. absoluta* by fungi under laboratory and field conditions. The same obtained by Sabbour & Singer 2014, Sabbour & Soliman 2014, Sabbour and Moursy 2014, Sabbour and

Abdel-Raheem 2014. The same findings obtained by Sabbour, 2013(a,b,c,d,e,f,g,h,I,j).

At the harvest time the corn weight obtained 3922±54.6 and 3110±60.4 kg/Feddan among the harvested plots treated with *B. brongniartii* and imidacloprid plots as compared to 2710±40.9 and 2511±73.2 kg/Feddan during seasons 2012 1nd 2013, respectively Table 5. When Imidacloprid + *B. broganitii* plots gave the highest yield 4510 ± 43.9 and 4919 ± 50.9 kg/feddan during season 2012 and 2013 respectively. The same results controlled cereal aphids with entomopathogenic fungi. They found that the infestation was reduced after fungi applications under laboratory and field conditions (Sabbour & Sahab 2005, 2007, and Sahab and Sabbour 2011) found that the fungi *B. bassiana*, *M. anisopliae*, *Pacilomyces fumosoroseus* *Verticillium lecanii*; reduced insect infestations of cabbage and tomato pests under laboratory and field conditions. Sabbour and Abdel-Rahman 2013 found that, in all treatments the number of corn pests were significantly decreased. Loss of the yield by Sabbour & Shadia Abd El-Aziz, (2002 and 2010), proved that applications with bioinsecticides increased the yield and decreased the infestations. They found that the infestation was reduced after fungi applications under laboratory and field conditions. Sabbour & Sahab (2005, 2007 and 2011) found that the fungi reduced insect infestations of cabbage and tomato pests under laboratory and field conditions. These results agree with Sabbour & Shadia Abd El-Aziz, (2002 and 2010), proved that applications with bioinsecticides increased the yield and decreased the the infestation with insect pests.

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Table 1: Effect of the entomopathogenic fungi, *B. broganitii* against the target insect pests larvae under laboratory conditions.

Insects	LC ₅₀	slope	variance	95% confidence limits
<i>Ostrinia nubilalis</i>	132X10 ⁴	0.1	1.01	99-166
<i>Sesamia cretica</i>	144X10 ⁴	0.2	1.00	110-189
<i>Chilo agamemnon</i>	170. X10 ⁴	1.03	1.01	135-199

Table 2: Effect of Imidacloprid against target insect pests under laboratory conditions.

Insects	LC ₅₀	slope	variance	95% confidence limits
<i>Ostrinia nubilalis</i>	76	1.01	0.02	111-79
<i>Sesamia cretica</i>	89	0.1	1.01	134-97
<i>Chilo agamemnon</i>	95	0.1	1.01	145-99

Table 3: Effect of Imidacloprid+B. broganiti against target insect pests under laboratory conditions.

Insects	LC50	slope	variance	95% confidence limits
<i>Ostrinia nubilalis</i>	46	1.01	0.02	11-89
<i>Sesamia cretica</i>	69	0.1	1.01	34-95
<i>Chilo agagemnon</i>	75	0.1	1.01	45-93

Table 4: Effect of different treatments on the target insect pests under field conditions

Post 1 st application date	Treatments	Number of infestation (means)±s.e during both two seasons					
		<i>Ostrinia nubilalis</i>		<i>Sesamia cretica</i>		<i>Chilo agagemnon</i>	
		2012	2013	2012	2013	2012	2013
20	Control	41 ±3.2	49±3.1	60±2.5	71±2.3	66±3.4	72±2.2
50		69±4.3	72±3.1	78±3.4	82±2.5	83±3.4	91±1.3
90		79±2.3	88±2.1	87±5.1	91±2.1	96±3.3	98±1.3
20	<i>B. brongniartii</i>	15±3.1	18±2.1	21±4.4	23±5.1	21±4.3	20±1.2
50		23±2.2	26±2.1	23±4.7	25±3.2	24±3.4	26±4.4
90		26±3.2	18±1.2	24±2.4	29±2.3	28±2.3	29±4.2
20	Imidacloprid	44±3.3	38±2.1	44±2.6	39±2.4	41±3.4	37±2.2
50		46±4.2	36±1.2	52±3.5	59±3.2	44±2.3	41±4.2
90		39±4.2	30±1.3	45±4.1	49±2.5	48±1.3	36±3.3
20	Imidacloprid+ <i>B. broganitii</i>	14±3.1	14±2.1	20±4.8	22±5.3	20±5.3	20±1.1
50		20±2.7	20±2.1	21±5.7	22±3.5	23±7.4	24±4.4
90		24±6.2	18±1.2	23±2.4	24±2.5	27±5.3	27±4.5
F value =		27.4	12.1	31.220	131.1	26.4	
Lsd5%=		16.4	15.4	14.7	14.2	15.1	16.8

Table 5: Assessments of damage caused in corn field after the fungi treatment

Treatments	Season 2012 Wt of corn crop (kg/ feddan) yield loss%	Season 2013 Wt of corn crop (kg/feddan) yield loss %
<i>B. brongniartii</i>	3922± 54.6	4241 ±60.4
Imidacloprid control	33110± 60.7	84.1 342511± 73.2
Imidacloprid + <i>B. broganitii</i>	312710 ± 40.9	484919 ± 50.9
	394510 ± 43.9	
F value	33.6	31.7
Lsd5%=	120.7	115.5

References

[1] **Abbott, W.W.** A method of computing the effectiveness of an insecticide. J. Econ. Entomol 1925: 18(2)(2): 265-267.

[2] **Castillo, M.A.; Moya, P.; Hernandez, E. and Primo-Yufera, E.** Susceptibility of *Ceratitiscapitata* Wiedenmann (Diptera: Tephritidae) to entomopathogenic fungi and their extract. Biol. Cont. 2000: 19(2): 274-282.

[3] **El-Husseini, M.M.; Shahira, S. Marie; A.M. Amal; A. El-Zoghby; Sahar S. Ali, Naglaa, A.M. Omar; E.A. Agamy; H.E. Abou Bakr; M.S. Nada; Sherin Tamer; Hannah, M. Kamal and A.M. Ibrahim,** 2004. Isolation, Production and use of entomopathogenic fungi for controlling the sugar beet insect pests in Egypt. Egypt. J. Biol. Pest Control. 2004:14(1): 265-275.

[4] **Espin, G.A. T. Iaghi De .S.M., Messias, C.L. and Pie-Drabuena, A.E.** Pathogenicidad de *Metarhizium anisopliae* diferentes fases de desenvolvimento de *Ceratitiscapitata* (Wied.) (Diptera: Tephritidae). Revista Brasileira de Entomologia. 1989 :33(2): 17-23.

[5] **Finney, D.J.** 1971. Probit Analysis, Cambridge: Cambridge University Press 1971.

[6] **Imidacloprid.(1998).** National Pesticide Telecommunications Network.[Online]

[7] **Oregon State University.** Available: <http://ace.orst.edu/info/nptn/factsheets/imidacloprid.htm> [2000, August 2].

[8] **Rombach, M.C.; Aguda, R.M. and Robert, D.W.** Production of *Beauveria bassiana* in different liquid media and subsequent conditions mycelium. Entomo. 1988: 3(33): 315-234.

[9] **Sabbour, M.M.** 1992. Biological of some stored product pests as affected by microbial control agents. MSc thesis Cairo University Fac of science. PP:256.

[10] **Sabbour, M.M.** 1995. Studies of some microbial insecticides on *Earias insulana* (Boised) (Lepidoptera: Noctuidae). PhD thesis Cairo University Fac of science. PP:289.

[11] **Sabbour, M.M.** 2001. Biochemist of haemolymph of *Earias insulana* larvae treated with *Bacillus thuringiensis* and *Beauveria bassiana*. J. Egypt. Ger. Soc. Zool. 36(E) Entomology 19-27.

[12] **Sabbour, M. M.** 2002a. The role of chemical additives in enhancing the efficacy of *Beauveria bassiana* and *Metarhizium anisopliae* against the potato tuber moth *Phthorimaea operculella* (Zeller) (Lepidoptera: Gelechiidae). Pakistan. J. of Biol. Sci. 5(11): 1155-1159.

[13] **Sabbour, M. M,** 2002b. Evaluation studies of some bio-control agents against corn borers in Egypt. Annal Agric. Sci. Ain Shams Univ. Cairo, 47(3): 1033-1043.

[14] **Sabbour, M. Mand Abdel-Rahman, A .** 2007. Evaluations of some terpenes and entomopathogenic fungi on three sugar beet insect pests. J. Boil. Pest. Cont. 17:22-29

- [15] **Sabbour, M. M. 2007.** Effect of some natural bioagents and natural enemies against aphids in wheat fields J. Boil. Pest. Cont 33: 33-39.
- [16] **Sabbour M.M. 2013m.** Entomotoxicity assay of Nanoparticle 4-(silica gel Cab-O-Sil-750, silica gel Cab-O-Sil-500) Against *Sitophilus oryzae* Under Laboratory and Store Conditions in Egypt. Sci. Re s. Rep. Vol., 1 (2), 67-74, 2013
- [17] **Sabbour M.M. 2013l.** Entomotoxicity assay of two Nanoparticle Materials 4a-(Al₂O₃ and TiO₂) Against *Sitophilus oryzae* Under Laboratory and Store Conditions in Egypt. Journal of Novel Applied Sciences. Sci. Res. Rep. Vol., 1 (2), 58-66, 2013.
- [18] **Sabbour M.M. 2013k.** Entomotoxicity assay of Nanoparticle 3-(Zinc oxide ZnO) Against *Sitophilus oryzae* Under Laboratory and Store Conditions in Egypt Sci. Re s. Rep. Vol., 1 (2),
- [19] **Sabbour, M.M. 2013a.** Efficacy of *Isaria fumosorosea* against olive pests under laboratory and field conditions in Egypt. I. J of development (1): 55-61.
- [20] **Sabbour, M.M. 2013b.** Preliminary Investigations Into The Biological Control Of Red Palm Weevil *Rhynchophorus ferrugineus* By Using *Beauveria bassiana* In Egypt. Emerging Issues in the Natural and Applied Sciences 2013; 3(1), 85-99. DOI: 10.7813/einas.2013/3-1/7
- [21] **Sabbour, M.M. 2013c.** Evaluation of isolated Entomopathogenic Fungi against the Red Palm Weevil *Rhynchophorus ferrugineus* in Egypt. Emerging Issues in the Natural and Applied Sciences 2013; 3(1), 111-125. DOI: 10.7813/einas.2013/3-1/9
- [22] **Sabbour, M.M. 2013d.** Evaluation of the Entomopathogenic Fungi *Metarhizium anisopliae* against the Red Palm Weevil *Rhynchophorus ferrugineus* in Egypt. Natural and Applied Sciences 2013; 3(1), 111-125. DOI: 10.7813/einas.2013/3-1/9
- [23] **Sabbour M.M. 2013e.** Evaluating toxicity of extracted destruxin from *Metarhizium anisopliae* against the desert locust *Schistocerca gregaria* in Egypt. J. Egypt. Acad. Environ. Develop. 14(1): 35-41.
- [24] **Sabbour M.M. 2013f.** Evaluating toxicity of extracted destruxin from *Metarhizium anisopliae* against the grasshopper *Heteracris littoralis* in Egypt. J. Egypt. Acad. Environ. Develop. 14(1): 29-34.
- [25] **Sabbour M.M. 2013g.** Bioactivity of natural essential oils against *Sitophilus oryzae* and *Ephestia kuehniella*. Scientia Agriculturae Sci. Agri. 1 (1), 2013: 15-20 .
- [26] **Sabbour M.M. 2013h.** Efficacy of *Nomuraea rileyi* and Spinosad against olive pests under laboratory and field conditions in Egypt. Global Journal Of Biodiversity Science And Management, 3(2): 228-232, 2013.
- [27] **Sabbour M.M. 2013i.** Efficacy of entomopathogenic fungi alone or in combination with inorganic insecticides for protecting a broad bean against certain coleopteran stored products beetles in Egypt. Global Journal Of Biodiversity Science And Management, 3(2): 182-187, 2013.
- [28] **Sabbour M.M. 2013 j.** Evaluations of some extracted natural oils against *Bruchidius incarnates* and *Ephestia elutella*. Global Journal of Scientific Researches Available online at gjsr.blue-ap.org. ©2013 GJSR Journal. Vol. 1(1), pp. 1-7, 5 December, 2013.
- [29] **Sabbour, M.M. 2013a.** Efficacy of *Isaria fumosorosea* against olive pests under laboratory and field conditions in Egypt. I. J of development (1): 55-61.
- [30] **Sabbour, M.M. 2013b.** Preliminary Investigations Into The Biological Control Of Red Palm Weevil *Rhynchophorus ferrugineus* By Using *Beauveria bassiana* In Egypt. Emerging Issues in the Natural and Applied Sciences 2013; 3(1), 85-99. DOI: 10.7813/einas.2013/3-1/7
- [31] **Sabbour, M.M. 2013c.** Evaluation of isolated Entomopathogenic Fungi against the Red Palm Weevil *Rhynchophorus ferrugineus* in Egypt. Emerging Issues in the Natural and Applied Sciences 2013; 3(1), 111-125. DOI: 10.7813/einas.2013/3-1/9
- [32] **Sabbour, M.M. 2013d.** Evaluation of the Entomopathogenic Fungi *Metarhizium anisopliae* against the Red Palm Weevil *Rhynchophorus ferrugineus* in Egypt. Natural and Applied Sciences 2013; 3(1), 111-125. DOI: 10.7813/einas.2013/3-1/9.
- [33] **Sabbour M.M. 2013e.** Evaluating toxicity of extracted destruxin from *Metarhizium anisopliae* against the desert locust *Schistocerca gregaria* in Egypt. J. Egypt. Acad. Environ. Develop. 14(1): 35-41.
- [34] **Sabbour M.M. 2013f.** Evaluating toxicity of extracted destruxin from *Metarhizium anisopliae* against the grasshopper *Heteracris littoralis* in Egypt. J. Egypt. Acad. Environ. Develop. 14(1): 29-34.
- [35] **Sabbour M.M. 2013g.** Bioactivity of natural essential oils against *Sitophilus oryzae* and *Ephestia kuehniella*. Scientia Agriculturae Sci. Agri. 1 (1), 2013: 15-20 .
- [36] **Sabbour M.M. 2013h.** Efficacy of *Nomuraea rileyi* and Spinosad against olive pests under laboratory and field conditions in Egypt. Global Journal Of Biodiversity Science And Management, 3(2): 228-232, 2013.
- [37] **Sabbour M.M. 2013i.** Efficacy of entomopathogenic fungi alone or in combination with inorganic insecticides for protecting a broad bean against certain coleopteran stored products beetles in Egypt. Global Journal Of Biodiversity Science And Management, 3(2): 182-187, 2013.
- [38] **Sabbour M.M. 2013 j.** Evaluations of some extracted natural oils against *Bruchidius incarnates* and *Ephestia elutella*. Global Journal of Scientific Researches Available online at gjsr.blue-ap.org. ©2013 GJSR Journal. Vol. 1(1), pp. 1-7, 5 December, 2013.
- [39] **Sabbour, Magda M, 2002.** Evaluation studies of some bio-control agents against corn borers in Egypt. Annal Agric. Sci. Ain Shams Univ. Cairo, 47(3): 1033-1043
- [40] **Sabbour, M.M. 2014.** Evaluating Toxicity of Extracted Destruxin from *Metarhizium anisopliae* Against the grasshopper *Heteracris littoralis* in Egypt
- [41] **Sabbour, M.M. and Nayera, Y. Soliman. 2014a.** Preliminary Investigations Into The Biological Control Of Red Palm Weevil *Rhynchophorus ferrugineus* By Using three isolates of the fungus *Lecanicillium (Verticillium) lecanii* In Egypt **Volume 3 Issue 8, August 2014. 2319-7064**
- [42] **Sabbour, M.M and M.A. Abdel-Raheem. 2014.** Evaluations of *Isaria fumosorosea* isolates against the Red Palm Weevil *Rhynchophorus ferrugineus* under laboratory and field conditions. Current Science International. 2077-4435.

- [43] **Sabbour, M.M and Nayera, Y. Soliman, 2014b.** Evaluations of three *Bacillus thuringiensis* against *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae) in Egypt. *Volume 3 Issue 8, August 2014.* 2319-7064
- [44] **Sabbour M.M.2014.** Biocontrol of the Tomato Pinworm *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae) in Egypt. *Middle East Journal of Agriculture Research*, 3(3): 499-503.
- [45] **Sabbour, M.M. 2014.** Efficacy of some microbial control agents and inorganic insecticides against red flour beetle *Tribolium castaneum* and confused flour beetle, *Tribolium confusum* (Coleoptera: Tenebrionidae) Integrated Protection of Stored Products. *IOBC-WPRS Bulletin Vol. 98, 2014.*pp. 193-201.
- [46] **Sabbour, M.M. and Shadia E. Abed El-Aziz.** Efficacy of some botanical oils formulated with microbial agents against the cotton leafworm and greasy cutworm attaching cotton plants. *Bull. ENT.Soc. Egypt.* 2002: 5(28): 135-151.
- [47] **Sabbour, M.M. and Sahab, A.F.2005.**Efficacy of some microbial control agents against cabbage pests in Egypt. *Pak. J. Biol. Sci.* 2005:5(8): 1351-1356.
- [48] **Sabbour, M.M. and Sahab, A.F.** Efficacy of some microbial control agents against *Agrotisipsilon* and *Heliothisarmigera* in Egypt. *Bull. N.R.C. Egypt.* 2007: 13(33): 165-174
- [49] **Sabbour, M.M. and Shadia, E. Abd-El-Aziz.** Efficacy of some bioinsecticides against *Bruchidiusincarnatus*(BOH.) (Coleoptera: Bruchidae) Infestation during storage. *J. Plant Prot. Res.* 2010: 50 (1): 28-34.
- [50] **Sabbour, M.M. 2014.** Efficacy of some microbial control agents and inorganic insecticides against red flour beetle *Tribolium castaneum* and confused flour beetle, *Tribolium confusum* (Coleoptera: Tenebrionidae) Integrated Protection of Stored Products. *IOBC-WPRS Bulletin Vol. 98, 2014.*pp. 193-201.
- [51] **Sabbour, M. M.2002 a.** The role of chemical additives in enhancing the efficacy of *Beauveria bassiana* and *Metarhizium anisopliae* against the potato tuber moth *Phthorimaea operculella* (Zeller) (Lepidoptera: Gelechiidae). *Pakistan. J. of Biol. Sci.* 5(11): 1155-1159.
- [52] **Sabbour, M.M. 2014.** Efficacy of some microbial control agents and inorganic insecticides against red flour beetle *Tribolium castaneum* and confused flour beetle, *Tribolium confusum* (Coleoptera: Tenebrionidae) Integrated Protection of Stored Products. *IOBC-WPRS Bulletin Vol. 98, 2014.*pp. 193-201.
- [53] **Sabbour, M. M.2002 a.** The role of chemical additives in enhancing the efficacy of *Beauveria bassiana* and *Metarhizium anisopliae* against the potato tuber moth *Phthorimaea operculella* (Zeller) (Lepidoptera: Gelechiidae). *Pakistan. J. of Biol. Sci.* 5(11): 1155-1159.
- [54] **Sabbour, Magda M, 2002b.**Evaluation studies of some bio-control agents against corn borers in Egypt. *Annal Agric. Sci. Ain Shams Univ. Cairo*, 47(3): 1033-1043.
- [55] **Sabbour, M. M. 2003.** The combined effects of some microbial control agents mixed with botanical extracts on some stored product insects. *Pakistan. J. of Biol. Sci.* 6 (1): 51-56.
- [56] **Sabbour, M. M. and Sahab, A. 2005.**Efficacy of some microbial control agents against cabbage pests in Egypt. *J. Pak. Of Biol. Sci.* (8) 10: 1351-1356.
- [57] **Sabbour, M, M. 2006.** Effect of some fertilizers mixed with bioinsecticides on the potato tuber moth *Phthorimaea operculella* infesting potato in the field and store. *Pak. Of Biol. Sci.* (1) 10: 1929-1934.
- [58] **Sabbour, M. M. and A. F. Sahab 2007.** Efficacy of some microbial control agents against *Agrotisipsilon* and *Heliothisarmigera* in Egypt . *Bull. N. R. C. Egypt.* 32: 561-571.
- [59] **Sabbour, M.M and Shadia E-Abd-El-Aziz 2007.** Efficiency of Some Bioinsecticides Against Broad Bean Beetle, *Bruchusrufimanus* (Coleoptera: Bruchidae).*Res. J. of Agric.and Biol. Sci.* 3(2): 67-72,
- [60] **Sabbour, M.M , 2007.** Evaluations of some entomopathogenic fungi and the predator *Coccinellaseptempunctata* against cereal aphids in Egypt, 2007. *Egypt. Bull. ent. Soc. Egypt.Econ.* 33: 165-174.
- [61] **Sabbour, M.M and Abbass, M.H.2007.** Efficacy of some microbial control agents against onion insect pests in Egypt. *J. boil. Pest. Cont.* 17: 23-27.
- [62] **Sabbour, M. M and Hany, A. 2007.** Controlling of *Bemisiatabaci* by *Verticillium lecanii* and *Paecilomyces fumosoroseus* in potato field. *Egypt. Bull. ent. Soc. Egypt*, 33:135-141
- [63] **Sabbour, M. M, (2008).**Evaluations of some microbial control agents against olive moth *Prays oleae* under field conditions under publication.
- [64] **Sabbour, M.M. 2009.** Evaluation of two entomopathogenic fungi against some insect pests infesting tomato crops in Egypt , *IOBC/wprs Bulletin*, Vol. 49: 273-278.
- [65] **Sabbour, M.M., M. Ragei and A. Abd-El Rahman, 2011.** Effect of Some Ecological Factors on The Growth of *Beauveria bassiana* and *Paecilomyces fumosoroseus* against Corn Borers. *Australian Journal of Basic and Applied Sciences*, 5(11): 228-235, 2011
- [66] **Sabbour, M.M . (2012).** Evaluations of some bioagents against the rice weevil *Sitophilus oryzae* under laboratory and store conditions. *Integrated Protection of Stored Products. IOBC-WPRS Bulletin Vol. 81, pp.* 135-142
- [67] **Sabbour M.M. and M.A. Abd-El-Raheem. 2013.** Repellent Effects of *Jatropha curcas*, canola and Jojoba Seed oil, against *Callosobruchus maculatus* (F.) and *Callosobruchuschinensis* (L.). *Journal of Applied Sciences Research*, 9(8): 4678-4682, 2013.
- [68] **Sabbour, M.M., A.A. Abd-El-Rahman and and M.A. Ragei. 2013.** Determinations of some extracted oils in controlling two stored product insect pests. *Middle East Journal of Agriculture Research, Middle East Journal of Agriculture Research*, 2(4): 127-132, 2013.
- [69] **Sabbour, M.M. 2013a.**Efficacy of *Isaria fumosorosea* against olive pests under laboratory and field conditions in Egypt. *I. J of development* (1): 55-61.
- [70] **Sabbour, M.M. 2013b.** Preliminary Investigations Into The Biological Control Of Red Sahab, A.F. and Sabbour, M.M.2011. Virulence of four entomopathogenic fungi on some cotton pests with especial reference to impact of some pesticides, nutritional and environmental factors on fungal growth. *Egypt. J. Boil. Pest Cont.* 2011: 21 (1): 61-67.
- [71] **Sabbour, M.M. 2013c.**Evaluation of isolated Entomopathogenic Fungi against the Red Palm Weevil

- Rhynchophorus ferrugineus* in Egypt. Emerging Issues in the Natural and Applied Sciences 2013; 3(1), 111-125.
- [72] **Sabbour, M.M. 2013d.** Evaluation of the Entomopathogenic Fungi *Metarhizium anisopliae* against the Red Palm Weevil *Rhynchophorus ferrugineus* in Egypt. Natural and Applied Sciences 2013; 3(1), 111-125.
- [73] **Sabbour M.M. 2013e.** Evaluating toxicity of extracted destruxin from *Metarhizium anisopliae* against the desert locust *Schistocerca gregaria* in Egypt. J. Egypt. Acad. Environ. Develop. 14(1): 35-41.
- [74] **Sabbour M.M. 2013f.** Evaluating toxicity of extracted destruxin from *Metarhizium anisopliae* against the grasshopper *Heteracris littoralis* in Egypt. J. Egypt. Acad. Environ. Develop. 14(1): 29-34.
- [75] **Sabbour M.M. 2013g.** Bioactivity of natural essential oils against *Sitophilus oryzae* and *Ephestia kuehniella*. Scientia Agriculturae Sci. Agri. 1 (1), 2013: 15-20.
- [76] **Sabbour M.M. 2013h.** Efficacy of *Nomuraea rileyi* and Spinosad against olive pests under laboratory and field conditions in Egypt. Global Journal Of Biodiversity Science And Management, 3(2): 228-232, 2013.
- [77] **Sabbour M.M. 2013i.** Efficacy of entomopathogenic fungi alone or in combination with inorganic insecticides for protecting a broad bean against certain coleopteran stored products beetles in Egypt. Global Journal Of Biodiversity Science And Management, 3(2): 182-187, 2013.
- [78] **Sabbour M.M. 2013 j.** Evaluations of some extracted natural oils against *Bruchidius incarnates* and *Ephestia elutella*. Global Journal of Scientific Researches Available online at gjsr.blue-ap.org. ©2013 GJSR Journal. Vol. 1(1), pp. 1-7.
- [79] **Sabbour, M.M and M.A. Abdel-Raheem. 2014.** Evaluations of *Isaria fumosorosea* isolates against the Red Palm Weevil *Rhynchophorus ferrugineus* under laboratory and field conditions. Current Science International. 2077-4435.
- [80] **Sabbour M.M. and Singer, S.M. 2014.** Evaluations of two isolated *Paecilomyces* against *Phthorimaea operculella* (Lepidoptera: Gelechiidae) under laboratory and field conditions. Volume 3 Issue 9, september 2014. 319-324.
- [81] **Sahab ,A.F; Sabbour , M.M., Attallah, A.G. and Abou-Serreh, Nivin. 2014.** Genetic analysis of the entomopathogenic fungus *Beauveria bassiana* to the corn borers tested by UV as physical mutagen. International Journal of ChemTech Research Vol.6, No.5, pp 3228-3236.
- [82] **Sameh A. Moustafa; Ahmed E. Abd El-Mageed; Mostafa M. El-Metwally and Nabil M. 2009.** Ghanim. Efficacy of Spinosad, Lufenuron and Malathion against olive fruit fly, *Bactrocera oleae* (Gmelin) (Diptera: Tephritidae) Egypt. Acad. J. biolog. Sci. 2009: 2 (2): 171- 178.