

SURVEY OF THE MOST LEPIDOPTEROUS MOTHS ATTRACTED TO A LIGHT-TRAP AT TWO REGIONS IN EGYPT

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ABSTRACT

Thirty-nine species belonged to eleven families were trapped in Nasr city (Cairo). The total numbers of trapped moths throughout the two years (2007&2008) were 23340 specimens. The total numbers of moths were 12646 individuals during the first year, while it was lower in the second year (10694 moths).

Forty-five species belonging to eleven lepidopterous families were recorded in Motobas region. The total numbers of moths during two years were 26483 moths. The total numbers of moths during the first year were 13680 moths and 12803 moths during the second year.

Family Noctuidae was the most abundant family in both number of species (16 and 19 species) and number of individuals, 9578 moths representing 41.04% and 13868 moths constituting 52.37% of the total Lepidopterous catch in Nasr city and Motobas respectively.

Spodoptera littoralis was the most abundant species, in all families in both regions. Individuals of this species (3878 moths represented 16.62% and 5759 moths represented 21.75% of the total lepidopterous catch in Nasr city and Motobas respectively.

INTRODUCTION

Studying the phenological aspects are very important way to follow up many relationships between environmental factors and population subjects for any group of insects. These subjects are: existence, population dynamics, population fluctuation, seasonal activity, number of generations.

Concerning the Egyptian ecosystem, distinctly changed in the latter years for many seasons which includes, planting of new crops in the new reclaimed lands, resistant and early maturing crops, destructing and harvesting of crops and weeds, solarization and irrigation.

The study of the lepidopterous fauna is very important for all biological, ecological and for extension and pests management programs.

The present work was carried out at two important regions in Egypt: Motobas district, Kafr El-Shiekh Governorate, and the Farm of the Faculty of Agriculture, Al-Azhar University at Nasr city, Cairo. The study lasted two successive years extending from January, 2007 and continued to the end of December 2008 by using usual light-trap (Robinson type).

The isolation of the species and specimens, counting and identification take place in two the laboratories one in the Faculty of Agriculture, Al-Azhar University, Nasr city, Cairo and the other one is in the Classification Research Department (Plant Protection Research Institute,

Dokki, Giza) by the help of the Revisional Collection in the previous department. Some of the good specimens have been pinned and preserved in our lateral Collection for future studies and for enhancing the lepidopterous Alfieri Collection in our department (Faculty of Agriculture).

This work was planned to follow up the speciation and count of the attracted lepidopterous moths species.

MATERIALS AND METHODS

The aim of the present part is to determine how to management the different methods for obtaining all and accurate data-base for all phenological aspects.

1- Site and location of work

The first step is to choose the site of work, why "Nasr city" and Kafr El-Sheikh ecosystem. We know that insect exist in all parts of our life, in houses, stores, warehouses, granaries, in the fields, in water-streams and ponds.

The first site of work was the farm of the faculty of Agriculture, Al-Azhar University at Nasr city east of great Cairo as a semi-desert area, that densely populated. The farm cultivated with numerous field crops, orchards, ornamental and medicinal plants, fiber plants, roses, vegetables, shrubs, weeds and trees. Also the whether and climatic condition are very difficult as a desert area which may effect in the speciation of the inhibiting lepidopterous species.

The second location is (Motobas) district in Kafr El-Sheikh Governorate (Northern of Delta) was chosen as old cultivated area specialized for field crops and other plants of great economic importance. The two sites are surveying as Delta ecosystem.

2- Method of collection

The second step is to determine firmly the real methods of collecting and surveying of moths. So, the use of the ideal "Robinson type" light-trap which provided with "250 watt" ultra-violet, mercury-vapour lamp had been chosen.

The light-trap container jar of "calcium cyanide" for quick killing insect especially moths of Lepidoptera. The trap was operated and fixed on any governmental building of three meters high above the ground, and this high is very suitable for good attractant to the flying moths.

The time of operate the trap is very important to reach the good results of trapping moth. So, the trap was start work from dusk (sunset period, and reaching to dawn time daily and automatically operated for two successive years starting from the first of January 2007 and reached to the end of December 2008.

The collecting of the attracted moths have been daily gathering in paper sac provided by fine paper stripes to prevent the moisture, molding and breakage throughout the "cyanide jar or within the preserving sac before the separation process.

3- Isolation and identification process

The third step is to start the isolation and separation of the attracted moths in the laboratories. This step had been done in two main laboratories, the first was in "the Taxonomic laboratory" in the Classification Research Department in the Plant Protection Research Institute (Ministry of Agriculture, Dokki, Giza, Egypt), while the second one was in the Plant Protection Department in the Faculty of Agriculture (Al- Azhar University- Nasr city, Cairo). The identification of the lepidopterous species have been achieved in the two laboratories by the technical assistance of the supervisor Prof. Dr. Moustafa Ahmed Badr, who is specialized in the taxonomy of lepidopterous species, and in that time by using the two main insect Collections, the Revisitional Insect Collection of the Classification Research Department and Alfieri Collection in Plant Protection Department Faculty of Agriculture, Al-Azhar University.

The counting of moth specimens have been finished directly after isolation and identification process. The counting and number of every species have been tabulated in special tables and weekly enhanced.

RESULTS AND DISCUSSION

As shown in Table (1) thirty-nine lepidopterous species belonged to eleven families were trapped in Nasr city (Cairo). The total numbers of trapped moths throughout the two years were 23340 specimens. The total numbers of moths were 12646 individuals during the first year, while it was lower in the second year (10694 moths). Ibrahim (1977) in a similar study found 20 species in Nasr city.

Table (2) presented a survey of attracted Lepidopterous moths in Motobas region. It included forty-five species that belonging to eleven lepidopterous families. The total numbers of moths during two years were 26483 moths. The largest number of moths were lured during the first year (13680 moths), while it was (12803 moths) in the second year. Zanaty *et al.* (1985) found forty species belonging to eight families at Kafr El-Shiekh region.

The occurrence of the determined families could be indicated as the follow:

1. Fam.: Cosmopterygidae

This family was represented by two species with a total number of 2248 and 2770 during two years in Nasr city and Motobas respectively, Table (1&2). *Sathrobrotia rileyi* moths were the most abundant within family Cosmopterygidae. About 1498 and 1947 moths of this species were trapped during two years, this number formed 6.42% and 7.35% of the total Lepidopterous moths in Nasr city and Motobas respectively. The species *Cosmopteryx mimetes* was the second cosmopterygid insect according to its flight activity. Its total lured number during the two years were 750 and 823 moths, this numbers representing 3.21% and 3.11% of the total catch in Nasr city and Motobas respectively. The two species were captured for the first time by using light-traps in the two regions.

Table (1): The total number and percentages of some flight Lepidopterous species obtained during the two investigated years (2007 &2008) in Nasr city.

| Families & Species | first year | | second year | | the two years | |
|--|--------------|------------|--------------|------------|---------------|------------|
| | Catch | | Catch | | Catch | |
| | Total | % | Total | Total | % | Total |
| Fam. Cosmopterygidae | | | | | | |
| <i>Cosmopteryx mimetes</i> Meyrick | 269 | 2.13 | 481 | 4.50 | 750 | 3.21 |
| <i>Sathrobrotia rileyi</i> (Walsingham) | 752 | 5.95 | 746 | 6.98 | 1498 | 6.42 |
| Total | 1021 | 8.07 | 1227 | 11.47 | 2248 | 9.63 |
| Fam. Gelechiidae | | | | | | |
| <i>Aproaerema anthyllidella</i> (H.) | 1068 | 8.45 | 1318 | 12.32 | 2386 | 10.22 |
| <i>Pectinophora gossypiella</i> (Saunders) | 516 | 4.08 | 495 | 4.63 | 1011 | 4.33 |
| Total | 1584 | 12.53 | 1813 | 16.95 | 3397 | 14.55 |
| Fam. Geometridae | | | | | | |
| <i>Chlorissa faustinata</i> Milliere | 213 | 1.68 | 15 | 0.14 | 228 | 0.98 |
| <i>Scopula adelpharia pharaonis</i> Sterneck | 423 | 3.34 | 406 | 3.80 | 829 | 3.55 |
| <i>Scopula donovani</i> (Distant) | 695 | 5.50 | 344 | 3.22 | 1039 | 4.45 |
| Total | 1331 | 10.53 | 765 | 7.15 | 2096 | 8.98 |
| Fam. Lemoniidae | | | | | | |
| <i>Lemonia philopalus</i> Panzer | 73 | 0.58 | 60 | 0.56 | 133 | 0.57 |
| Fam. Lyonetiidae | | | | | | |
| <i>Lyoneta clerkella</i> (L.) | 147 | 1.16 | 95 | 0.89 | 242 | 1.04 |
| Fam. Noctuidae | | | | | | |
| <i>Agrotis ipsilon</i> (Huf) | 224 | 1.77 | 212 | 1.98 | 436 | 1.87 |
| <i>Agrotis spinifera</i> (H.) | 254 | 2.01 | 257 | 2.40 | 511 | 2.19 |
| <i>Autographa gamma</i> (L.) | 236 | 1.87 | 178 | 1.66 | 414 | 1.77 |
| <i>Chrysodilex chalacytes</i> (Esper) | 128 | 1.01 | 108 | 1.01 | 236 | 1.01 |
| <i>Earias insulana</i> (Boisd.) | 188 | 1.49 | 114 | 1.07 | 302 | 1.29 |
| <i>Eublemma gayneri</i> Rothschild | 380 | 3.00 | 295 | 2.76 | 675 | 2.89 |
| <i>Grammodes boisdeffre</i> Oberthur | 91 | 0.72 | 71 | 0.66 | 162 | 0.69 |
| <i>Helicoverpa armigera</i> (H.) | 149 | 1.18 | 136 | 1.27 | 285 | 1.22 |
| <i>Heliothis peltigera</i> (Denis & Schiffer.) | 96 | 0.76 | 104 | 0.97 | 200 | 0.86 |
| <i>Noctua pronuba</i> L. | 158 | 1.25 | 144 | 1.35 | 302 | 1.29 |
| <i>Scotogramma trifolii</i> (Huf.) | 83 | 0.66 | 70 | 0.65 | 153 | 0.66 |
| <i>Sesamia cretica</i> Led. | 293 | 2.32 | 195 | 1.82 | 488 | 2.09 |
| <i>Spodoptera exigua</i> (H.) | 324 | 2.56 | 332 | 3.10 | 656 | 2.81 |
| <i>Spodoptera littoralis</i> (Boisd.) | 2308 | 18.25 | 1570 | 14.68 | 3878 | 16.62 |
| <i>Spodoptera latebrosa</i> Led. | 411 | 3.25 | 277 | 2.59 | 688 | 2.95 |
| <i>Thysanoplusia orichalcea</i> (F.) | 97 | 0.77 | 95 | 0.89 | 192 | 0.82 |
| Total | 5420 | 42.86 | 4158 | 38.88 | 9578 | 41.04 |
| Fam. Oecophoridae | | | | | | |
| <i>Depressaria straminella</i> (Stgr.) | 276 | 2.18 | 322 | 3.01 | 598 | 2.56 |
| Fam. Plutellidae | | | | | | |
| <i>Plutella xylostella</i> (L.) | 849 | 6.71 | 629 | 5.88 | 1478 | 6.33 |
| Fam. Pyralidae | | | | | | |
| <i>Etiella zinckenella</i> (Treit.) | 106 | 0.84 | 103 | 0.96 | 209 | 0.90 |
| <i>Euchromius cambridgei</i> Zeller | 142 | 1.12 | 190 | 1.78 | 332 | 1.42 |
| <i>Pyralis galactalis</i> Haworth | 1 | 0.01 | 1 | 0.01 | 2 | 0.01 |
| Total | 249 | 1.97 | 294 | 2.75 | 543 | 2.33 |
| Fam. Pyraustidae | | | | | | |
| <i>Herptogramma licarsialis</i> (Walker) | 274 | 2.17 | 271 | 2.53 | 545 | 2.34 |
| <i>Hymenia recurvalis</i> (F.) | 340 | 2.69 | 263 | 2.46 | 603 | 2.58 |
| <i>Nomophila noctuella</i> (Denis & Schiffer.) | 436 | 3.45 | 253 | 2.37 | 689 | 2.95 |
| <i>Noctuella floralis</i> (H.) | 118 | 0.93 | 120 | 1.12 | 238 | 1.02 |
| <i>Ostrinia nubilalis</i> (H.) | 222 | 1.76 | 178 | 1.66 | 400 | 1.71 |
| <i>Palpa unionalis</i> (H.) | 135 | 1.07 | 102 | 0.95 | 237 | 1.02 |
| <i>Pyrausta sanguinalis</i> (L.) | 129 | 1.02 | 86 | 0.80 | 215 | 0.92 |
| Total | 1654 | 13.08 | 1273 | 11.90 | 2927 | 12.54 |
| Fam. Sphingidae | | | | | | |
| <i>Agrus convolvuli convolvuli</i> (L.) | 9 | 0.07 | 11 | 0.10 | 20 | 0.09 |
| <i>Hyles lineata livorinica</i> (Esper) | 33 | 0.26 | 47 | 0.44 | 80 | 0.34 |
| Total | 42 | 0.33 | 58 | 0.54 | 100 | 0.43 |
| Total catch | 12646 | 100 | 10694 | 100 | 23340 | 100 |

Table (2): The total number and percentages of some flight lepidopterous species obtained during the two investigated years (2007 & 2008) in Motobas district.

| Families & Species | first year | | second year | | the two years | |
|--|--------------|--------------|--------------|--------------|---------------|--------------|
| | Catch | | Catch | | Catch | |
| | Total | % | Total | Total | % | Total |
| Fam. Cosmopterygidae | | | | | | |
| <i>Cosmopteryx mimetes</i> Meyrick | 379 | 2.77 | 444 | 3.47 | 823 | 3.11 |
| <i>Sathrobrotia rileyi</i> (Walsingham) | 898 | 6.56 | 1049 | 8.19 | 1947 | 7.35 |
| Total | 1277 | 9.33 | 1493 | 11.66 | 2770 | 10.46 |
| Fam. Cossidae | | | | | | |
| <i>Phragmataecia castanea</i> (H.) | 73 | 0.53 | 58 | 0.45 | 131 | 0.49 |
| <i>Zeuzera pyrina</i> (L.) | 14 | 0.10 | 9 | 0.07 | 23 | 0.09 |
| Total | 87 | 0.64 | 67 | 0.52 | 154 | 0.58 |
| Fam. Gelechiidae | | | | | | |
| <i>Pectinophora gossypiella</i> (Saunders) | 267 | 1.95 | 247 | 1.93 | 514 | 1.94 |
| Fam. Geometridae | | | | | | |
| <i>Chlorissa taustinata</i> Milliere | 24 | 0.18 | 31 | 0.24 | 55 | 0.21 |
| <i>Rhodometra sacraria</i> (L.) | 209 | 1.53 | 327 | 2.55 | 536 | 2.02 |
| <i>Scopula adelpharia pharaonis</i> Sterneck | 282 | 2.06 | 277 | 2.16 | 559 | 2.11 |
| Total | 515 | 3.76 | 635 | 4.96 | 1150 | 4.34 |
| Fam. Lemoniidae | | | | | | |
| <i>Lemonia philopalus</i> Panzer | 72 | 0.53 | 85 | 0.66 | 157 | 0.59 |
| Fam. Noctuidae | | | | | | |
| <i>Agrotis ipsilon</i> (Huf) | 257 | 1.88 | 252 | 1.97 | 509 | 1.92 |
| <i>Agrotis spinifera</i> (H.) | 149 | 1.09 | 170 | 1.33 | 319 | 1.20 |
| <i>Aithetis clavipalpis</i> Scopoli | 122 | 0.89 | 180 | 1.41 | 302 | 1.14 |
| <i>Autographa gamma</i> (L.) | 260 | 1.90 | 219 | 1.71 | 479 | 1.81 |
| <i>Chrysodeixis chalcites</i> (Esper) | 191 | 1.40 | 135 | 1.05 | 326 | 1.23 |
| <i>Earias insulana</i> (Boisd.) | 202 | 1.48 | 145 | 1.13 | 347 | 1.31 |
| <i>Eublemma gayneri</i> Rotheschild | 398 | 2.91 | 312 | 2.44 | 710 | 2.68 |
| <i>Eublemma scitula</i> (Rambur) | 67 | 0.49 | 284 | 2.22 | 351 | 1.33 |
| <i>Grammodes boisdeffrei</i> Oberthur | 109 | 0.80 | 93 | 0.73 | 202 | 0.76 |
| <i>Helicoverpa armigera</i> (H.) | 197 | 1.44 | 171 | 1.34 | 368 | 1.39 |
| <i>Heliothis peltigera</i> (Denis & Schiffer.) | 205 | 1.50 | 133 | 1.04 | 338 | 1.28 |
| <i>Mythimna loreyi</i> (Dup.) | 192 | 1.40 | 184 | 1.44 | 376 | 1.42 |
| <i>Noctua pronuba</i> L. | 292 | 2.13 | 243 | 1.90 | 535 | 2.02 |
| <i>Pseudaletia unipuncta</i> (Haworth) | 64 | 0.47 | 192 | 1.5 | 256 | 0.97 |
| <i>Sesamia cretica</i> Led. | 198 | 1.45 | 162 | 1.27 | 360 | 1.36 |
| <i>Spodoptera exigua</i> (H.) | 623 | 4.55 | 509 | 3.98 | 1132 | 4.27 |
| <i>Spodoptera littoralis</i> (Boisd.) | 3200 | 23.39 | 2559 | 19.99 | 5759 | 21.75 |
| <i>Spodoptera latebrosa</i> Led. | 504 | 3.68 | 474 | 3.70 | 978 | 3.69 |
| <i>Syngrapha circumflexa</i> (L.) | 140 | 1.02 | 81 | 0.63 | 221 | 0.83 |
| total | 7370 | 53.87 | 6498 | 50.75 | 13868 | 52.37 |
| Fam. Plutellidae | | | | | | |
| <i>Plutella xyloslla</i> (L.) | 893 | 6.53 | 576 | 4.50 | 1469 | 5.55 |
| Fam. Pterophoridae | | | | | | |
| <i>Pterophorus monodactylus</i> (L.) | 1 | 0.01 | 1 | 0.01 | 2 | 0.01 |
| Fam. Pyralidae | | | | | | |
| <i>Chilo agamemnon</i> Blesz. | 221 | 1.62 | 174 | 1.36 | 395 | 1.49 |
| <i>Etiella zinckenella</i> (Treit.) | 125 | 0.91 | 107 | 0.84 | 232 | 0.88 |
| <i>Euchromius cambridgei</i> Zeller | 175 | 1.28 | 179 | 1.40 | 354 | 1.34 |
| <i>Lepidogma obatralis</i> Christoph | 183 | 1.34 | 210 | 1.64 | 393 | 1.48 |
| <i>Schoenobius niloticus</i> Zeller | 180 | 1.32 | 148 | 1.16 | 328 | 1.24 |
| Total | 884 | 6.46 | 818 | 6.39 | 1702 | 6.43 |
| Fam. Pyraustidae | | | | | | |
| <i>Herpetogramma licarsialis</i> (Walker) | 337 | 2.46 | 342 | 2.67 | 679 | 2.56 |
| <i>Hymenia recurvalis</i> (F.) | 226 | 1.65 | 280 | 2.19 | 506 | 1.91 |
| <i>Nomophila noctuella</i> (Denis & Schiffer.) | 276 | 2.02 | 309 | 2.41 | 585 | 2.21 |
| <i>Noctuella floralis</i> (H.) | 283 | 2.07 | 307 | 2.40 | 590 | 2.23 |
| <i>Ostrinia nubilalis</i> (H.) | 197 | 1.44 | 180 | 1.41 | 377 | 1.42 |
| <i>Palpita unionalis</i> (H.) | 89 | 0.65 | 90 | 0.70 | 179 | 0.68 |
| <i>Pyrausta aurata</i> Staudinger | 499 | 3.65 | 460 | 3.59 | 959 | 3.62 |
| <i>Pyrausta sanguinalis</i> (L.) | 342 | 2.50 | 346 | 2.70 | 688 | 2.60 |
| Total | 2249 | 16.44 | 2314 | 18.07 | 4563 | 17.23 |
| Fam. Sphingidae | | | | | | |
| <i>Agrius convolvuli convolvuli</i> (L.) | 24 | 0.18 | 22 | 0.17 | 46 | 0.17 |
| <i>Hyles lineata livornica</i> (Esper) | 41 | 0.30 | 47 | 0.37 | 88 | 0.33 |
| Total | 65 | 0.48 | 69 | 0.54 | 134 | 0.51 |
| Total catch | 13680 | 100 | 12803 | 100 | 26483 | 100 |

2. Fam.: Cossidae

Two species of family Cossidae were found in the catches in Motobas (Table 2) in relatively low numbers of 131 and 23 moths the species *Phragmataecia castanea* and *Zeuzera pyrina* respectively representing 0.58% of the total catch of lepidopterous insect.

3. Fam.: Gelechiidae

Family Gelechiidae was represented in the catches by two species in Nasr city (Table 1), and only one species in Motobas (Table 2). The total catches of this family reached 3397 moths, representing 14.55 % of the total Lepidopterous moths in Nasr city (Table 1). *Aproaerema anthyllidella* come in the second arrangement among of all species in Nasr city, this species was caught for the first time here; the total number of which reached 2386 moths formed 10.22% of the total catches of two years. The highest numbers of this species were 1318 moths representing 12.32 % in the second year (Table 1). *Pectinophora gossypiella* come next in abundance among gelechiid moths (1011 moth) representing about 4.33% of total moths catches in Nasr city and (514 moth) formed 1.94 % in Motobas. Ibrahim (1977) in Nasr city found only *Pectinophora gossypiella*, in gelechiid moths (463 moths) representing about 3.6 % of the total moths catch during two years, Zanaty *et al.* (1985) in Kafr El-Shiekh recorded this insect (136 moths/ year).

4. Fam.: Geometridae

Family Geometridae was represented by four species in the two regions. The total number of geometrid moths reached 2096 moths and 1150 moths constituted 8.98 % and 4.34% of the total Lepidopterous catches in Nasr city and Motobas respectively. *Scopula donovani* was the most abundant species (1039 moths, representing 4.45% of the lepidopterous catches in Nasr city, Table 1) and (559 moths forming about 2.11 of the moths catches in Motobas, Table 2). The large numbers of this species were caught in the first year 695 moths representing 5.5% of the total lepidopterous catches in Nasr city. The other three species were less abundant during this work.

5. Fam.: Lemoniidae

This family represented by only one species, *Lemonia philopalus*, with low numbers, the total numbers was 133 and 157 moths (0.56% and 0.59% of the total catch) in Nasr city and Motobas respectively. The highest number of this species was 85 moths during the second year in Motobas. This species was recorded for the first time by using light-traps in Egypt.

6. Fam: Lyonetiidae

Table (1) showed that Family Lyonetiidae was represented by only one species, apple leafminer *Lyonetia clerkella* with total catch 242 moths, constituting 1.04% of the total lepidopterous catch, the highly numbers of this species was recorded during the first year 147 moths. This species was recorded for the first time by light-traps of collection.

7. Fam.: Noctuidae

Moths of family Noctuidae dominated the catch either in number of species or individuals. Sixteen species, 9578 moths representing 41.04% in Nasr city and 19 species, 13868 moths constituting 52.37% of the total Lepidopterous catch in Motobas. Ibrahim (1977), Badr *et al.* (1985a), Badr *et*

al., (1985 b), Zanaty *et al.*, (1985), El-Bassiouny *et. al.* (1997), Dall'-Asta (1997) and Nabli *et. al.* (1999) indicated that family Noctuidae was the most abundant family in both number of individuals and species. Some important species were chosen here to discuss their abundance.

Spodoptera littoralis was the most abundant species, in all families in both regions. Individuals of this species (3878 moths represented 16.62% and 5759 moths represented 21.75% of the total lepidopterous catch in Nasr city and Motobas respectively. The largest number (3200 moths) was trapped in the first year in Motobas, while the lowest number was (1570 moths) in the second year in Nasr city. Ibrahim (1977) in Nasr city found that *S. littoralis* was the most abundant species, in all families in Nasr City (2518 moths) and represent 19.7 % of total catch in two years, Zanaty *et al.*(1985) found the same results in Kafr El-Shiekh (5349 moths/ year).

The next common noctuid species was, *Spodoptera exigua*, of total number 656 specimens, formed 2.81% of the total lepidopterous catch in Nasr city, Ibrahim (1977) in the same region found that *S. exigua* was (462 moths) and represent 3.6 % of total catch in two years. Whereas the total number was caught was 1132 moths, forming about 4.27% of total catch in Motobas. Zanaty *et al.*(1985) found that 1694 moths/ year of *S. exigua* in Kafr El-Shiekh.

Spodoptera laticornis was the 3rd one with the total number of this species had been caught during the two years in Nasr city was 688 individuals, representing 2.95% of total catch, whereas the total catch of this species in Motobas was 978 moths, forming about 3.69% of total catch during the two years. The highest number of this species was 504 moths representing 3.68% of total catch in the first year in Motobas, while the lowest number was 277 forming about 2.59 % in the second year in Nasr city. The moths of the predator, *Eublemma gayneri* caught at a percentage approximately similar to the previous species in Nasr city (Table 1), while the total number of which 710 specimens constituting 2.68% of total catch in Motobas (Table 2). The highest number of this species was recorded in the first year in Motobas, whereas the lowest number lured in the second year in Nasr city.

Percentage of *Agrotis spinifera*, *A. ipsilon*, *Sesamia cretica*, *Autographa gama*, *Earias insulana*, *Noctua pronuba*, *Helicoverpa armigera* and *Chryodeixis chalcites* ranged between 1.01-2.19% of the total insect catch throughout the period of investigation in both regions (the moths of *Athetis clavipalpis*, predator *Eublemma scitula* and *Heliothis peltigra* within the same range in Kafr El-Shiekh. The other noctuid attracted species were less abundant (Table 1&2). Mizukoshi (1999) in Japan, recorded that *A. ipsilon* moths were not captured in large numbers by Light-traps

8. Fam.: Oecophoridae

This family represented by only one species, *Depressaria straminella* constituting 2.56% of the total catches in Nasr City. The former species was recorded for the first time here in highest numbers during the second year (322 moths) representing about 3.01%.

9. Fam.: Plutellidae

Family Plutellidae was represented by only one species, *Plutella xylostella*, with highest numbers, 1478 moths representing 6.33% of the total catch in Nasr city (Table 1). Individuals of this species (1469 moths) represented 5.55% of the total catch in Motobas. The highest numbers of this species 893 moths was trapped during the first year in Motobas (Table 2). Zanaty *et al.* (1985) found a few number of this species (51 moths/ year) in Kafr El-Shiekh.

10. Fam.: Pterophoridae

Family Pterophoridae was represented by only one species, *Pterophorus monodactylus* with only one moth/year in Motobas (Table 2).

11. Fam.: Pyralidae

Table (1) showed that family Pyralidae was represented by three species in Nasr city, were it found in relatively smaller numbers, the total numbers of this family 543 moth represented 2.33% of a total catch in Nasr city (Table 1). *Echromius cambridgei*, was the most abundant 332 moths constituting 1.42% of the total catch, while *Pyralis galactalis*, was represented by only one moth/ year for the first time here.

The results in Table (2) there are five pyralid species in Motobas, with a total numbers 1702 moths forming about 6.43% of the total catch. *Chilo agamemnon*, was the most abundant 395 moth represented 1.49% of the total catch in Motobas. Zanaty *et al.* (1985) found this species in Kafr El-Shiekh (82 moths/ year).

12. Fam.: Pyraustidae

The data showed that family Pyraustidae were the second in rank after family Noctuidae. The former insects appeared from (Table 1&2) were attracted at a magnitude of pyraustids moths about (12.54%) and (17.23%) of the total lepidopterous catch during the two years in Nasr city and Motobas respectively. The highest number of this family were caught during the second year in Motobas (2314 moths, Table 2), while the lowest number were caught during the second year in Nasr city (1273 moths, Table 1). The species, *Nomophila noctuella* was the previous in highest number in Nasr City (689 moths, representing 2.95% of total catch, Table 1). Its number was 585, forming about 2.21% of the total catch in Motobas (Table 2). The most moths of species (436) were collected in the first year in Nasr city (Table 1). *Herptogramma licarsisalis* was the second pyraustid species according to its flight activity in two regions. The total number during the two years in Nasr city was 545 moths. This number formed about 2.34% of the total catch (Table 1), while the total number of this species in Motobas was 679 moths. This number formed about 2.56% of the total catch (Table 2). *Pyrausta aurata* was the most abundant species of this family in Motobas region. Its total number reached 959 moths constituting 3.62% of the total catch during the two years (Table 1). Ibrahim (1977) in Nasr city region found only two species of this family namely; *Nomophila noctuella* and *Ostrina nubilalis* and represent 5.8 % of total catch in two years, Zanaty *et al.* (1985) found four species of this family in Kafr El-Shiekh with total number 488 moths/ year.

13. Fam.: Sphingidae

This family was represented by only two species were attracted to the light-trap in very small numbers. These species are *Agrius convolvuli convolvuli* and *Hyles lineata livornica*. The total number of the two species reached 100 and 134 moths, representing 0.43% and 0.51% of the total attracted moths in Nasr city and Motobas respectively. Zanaty *et al.* (1985) in Kafr El-Shiekh found one species (*Deilephila livornica*) in this family also with a few number (32 moths/ year).

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حصر لمعظم فراشات حرشفية الأجنحة المنجذبة للمصادر الضوئية فى منطقتين بمصر

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أشتملت هذه الدراسة على تتبع تنوع فراشات رتبة حرشفية الأجنحة وأعدادها باستخدام المصادر الضوئية فى منطقتين بمصر هما مزرعة كلية الزراعة بكلية الزراعة جامعة الأزهر بمدينة نصر بالقاهرة كمنطقة شبه صحراوية، ومنطقة مطوبس بكفر الشيخ كمنطقة زراعية قديمة وتقليدية لدراسة تأثير العوامل الجوية والبيئية بما فيها البيئة النباتية، وذلك لدراسة الوفرة والنشاط الموسمى ووجود أنواع فراشات رتبة حرشفية الأجنحة التى تنشط ليلا وتتجذب للمصادر الضوئية.

أهتمت هذه الدراسة بحصر أنواع وأعداد الفراشات المنجذبة للمصادر الضوئية فى منطقة مطوبس بكفر الشيخ شمال الدلتا ومنطقة مدينة نصر بالقاهرة حيث تمثل جنوب الدلتا وتختلف كل منهما عن الأخرى من حيث العوامل المناخية والتنوع النباتى مما قد يؤدى الى اختلاف وجود الفراشات فى كل منطقة عن الأخرى وقد أظهرت النتائج الأتى.

بينت الدراسة وجود 39 نوعا من فراشات رتبة حرشفية الأجنحة تقع تحت 11 فصيلة فى منطقة مدينة نصر (القاهرة)، المجموع الكلى لهذه الفراشات 23646 فراشة خلال عامى الدراسة 2007-2008. حيث كانت أعداد الفراشات 12646 فراشة خلال العام الأول بينما كانت فى العام الثانى 10694 فراشة. كما أظهرت الدراسة وجود 45 نوعا تقع تحت 11 فصيلة من رتبة حرشفية الأجنحة فى منطقة مطوبس بكفر الشيخ حيث كان المجموع الكلى لها 26483 فراشة بواقع 13680 فراشة فى العام الأول، 12803 خلال العام الثانى وسجلت فصيلة Noctuidae أعلى تعداد من حيث الأنواع والعينات حيث سجلت 16 نوعا منها وكان تعداد افرادها 9578 فراشة بنسبة 41.04% من التعداد الكلى للفراشات فى مدينة نصر. كما سجلت 19 نوعا كان تعداد افرادها 13868 بنسبة 52.37% من التعداد الكلى للفراشات فى مطوبس.

كانت دودة ورق القطن الكبرى *Spodoptera littoralis* أعلى الأنواع تعدادا فى كل الفصائل فى كلا المنطقتين خلال عامى الدراسة، بواقع 3878 فراشة بنسبة 16.62% من التعداد الكلى للفراشات فى مدينة نصر، 5759 فراشة بنسبة 21.75% من التعداد الكلى للفراشات فى مطوبس.

تساعد هذه الدراسة مع الدراسات الايكولوجية الأخرى التى تستخدم المصادر الضوئية كطريقة من طرق الحصر ودراسة تنوع فراشات رتبة حرشفية الأجنحة، وذلك لأعمال المكافحة المتكاملة للأفات من هذه الرتبة وكذلك لدراسة الوفرة الموسمية وتذبذب المجموع ودراسة نشاط الحشرات لجميع دراسات الايكولوجى والبيولوجى والدراسات التصنيفية وانشاء المجاميع الحشرية الجديدة وتدعيمها وتوفير عينات حشرية جيدة للطلبة للدراسات العليا وغيرها.

قام بتحكيم البحث

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