SUMMARY AND CONCLUSION

The study of the Egyptian faunatic representatives of Mesostigmata is considered of special importance, since members included, are well known, actually as very active and efficient predators. It is hoped to participate in biological or even integrational control programmes of various pests. The considerable level of Ecosystem destroy, observed, necessitate to find out and apply such alternate of the recently extentive use of conventional chemical control method, for saving the egyptian Agro-environment. The overdependent on such chemical methods, which markedly desturbed natural balance in such environment, resulted in instantaneous killing of natural enemies of various pests. consequently the disciplinary role of them in balancing Agro- ecosystem was enitrely excluded. Thus,it is required, principally to change the pest control strategey in Egypt, by the gradual shifting towards biological methods, in which chemical application must be restricted only to the existance of great necessity ; otherwise blending in integrated control programmes.

So, the presentt work was focused upon survaying and taxnomical recognition of the Mesostigmatic predaceous species under the egyptian environmental conditions, in different localities,as a necessary prel minary step, before utilizing such organisms in, subsequent biological control applications.

Results achieved are summarized in the following :

1. About 200 samples were collected from soil, plants and partially bird nests in various natural localities covering seven Egyptian Governorates, yielded about 7000 mite individuals, of which only mesostigmatid predators were isolated. From these, about 600 specimens were permanently mounted and identified using stereoscopic binocular research microscope. This process was carried out after conducting primary identification on temporary preparations. using concave slide.

2. Identification of permanently prepared specimens were carried out,reaching specific level, thereafter were distributed according to their relationships to the higher categories.

3. About 48 mesostigmatid predaceous species were recognized . They seemed to belong in 20 different genera,which are related to 12 higher taxa on familial and subfamilial levels. They were rather divided into 6 groups on the level of superfamilial ranks, of cohort Gamasina,

4. From the revealed taxa, 21 species were, firstly recorded for the Egyptian fauna, of which 5 ones seemed to be rather new for science. They were briefly described, figured and named as, Macrocheles helwani sp.n, M. abdelwahabi sp.n., M. zaheri sp.n. and Amerosejus (B.) paraplumosus sp.n. and Lasioseius solimani sp. n.

The newly recorded species, as added to the Egyptian Mesostigmatid fauna are : Macrocheles recki, Bregetova et Koroleva, 1960 ; M. scutatiformis Petrova, 1967; M. (matrius) violovitshi, Bregetova et Koroleva, 1967 ; Pachylaelaps vexillifer Willmann, 1956; Hypoaspis aculeifer Canestrini, 1883 ; H. paraesternalis Willmann, 1949; Laelaspis imitatus Reitblat, 1963 ; Amblyseius umpraticus Chant, 1956 ; A. callunae Willmann, 1952 ; A. rademackeri Dosse, 1958 ; A. bryophilus Karg, 1970 ; Kampimodromus aberrans Oudemans, 1930 ; K. langi Wainstein et Arutunjan, 1970 ; Ameroseius (Bognarseius) plumegera (Oudemans, 1930) and Rhodacarus denticulatus Berlese, 1921.

5. Classification of the detected species, were based, to far extent, on natural systemizing in combination with artificial one till the standard of superfamilial levels. On the standard of the latter, superfamilies, which comprised this collection were; Eviphidoidea Karg, 1965; Dermanyssoidea Kolenati, 1859; Phytoseioidea (Karg, 1965), Kandil, 1981 Ascoidea Karg, 1965; Rhodacaroidea Krantz,1978 and Parasitoidea Krantz, 1978. The latter two superfamilies combinations were accepted after Krantz, 1978 in the following :

A) All taxa included in superfamilies Rhodacaroidea and parasitoidea were erroneously comprised by Karg, 1965 in

superfamily Eugamaseoidea, which included families Rhodacaridae Oudemans, 1902, and Eugamasidae Hirschmann, 1962. The latter one rather included subfamily Parasitinae Oudemans, 1901.

B) The system of Krantz, 1978, in which he corrected what was overlooked by Karg, 1965 of the priotity of Rhodacaridae, thereupon he replaced Eugamasoidea by Rhodacaroidea is satisfactorily, accepted and followed here. Furthermore, he transferred subfamily Parasitinae form the group, upon which he created thereat new superfamily Parasitoidea in the year 1978, which also is utilized within the present course of investigation.

6. It is worth noting, that the modified system of superfamily Phytoseioidea Karg, 1965 whcih was modified by Kandil, 1980, was followed satisfactorily in such work. Such modification comprised familial and subfamilial membership depending upon reevaluation of taxonomic characters in relation to ecological and biological responses, reconcillation of hindered nomenclatural priority of some taxa, new combination of subfamilies included in some families, generic membership of each family and subfamily, and rather splitting some genera to subgeneric ranks, which seemed to have essential importance in simplifying the task of classification. These stimulant modifications which conicide with the present one are :

A) Families Phytoseiidae Berlese, 1916 ; Blattisocidae Garman, 1948 ; Ameroseiidae Evans, 1963 and Podocinidae Berlese, 1916 are considered to constitute superfamily Phytoseioidea. Fortunately, all families are represented.

B) Family Phytoseiidae was represented by subfamilies Phytoseiinae Berlese, 1916 and Amblyseiinae Muma, 1961.

C) Genus Kampimodromus Nesbitt, 1951 which is firstly recorded to the Egyptian fauna, through the present work, is ordered here within subfamily Amblyseiinae.

D) Genera Blattisocius keegan, 1944 and Proctolaelaps Berlese, 1923, represented, faunatically family Blattisocidae in Egypt.

E) Genus Ameroseius Berlese, 1923 was splitted into two subgenera Ameroseius s.str. and Bognarseius Kandil (in press).

F) Genus Lasioseius Berlese, 1916 is classified within family Podocinidae.

G) Genus Cheiroseius Berlese, 1916 is returned within the present work to family Ascidae Voigts & Oudemans, 1905, after it had been transferred by Kandil,1980 to family Blattisocidae .

7. Historical review of eash taxon at various levels from superfamilial till generic levels is concerned and presented in the present work.

8. Taxonomical contaxic features of all groups included in

the present work, are extensively conducted for the aim of limiting each one at its diagnostic characters, which distinctly facilitate the task of identification.

9. For the purpose of distinguishing different taxa from each other, identification keys, at various levels from superfamily to species,on the bases of the Egyptian faunatic representative of Mesostigmatic predators detected, are established independently, otherwise in few cases, combined with those of Zaher et al., 1986. Such keys were, principally, based on female taxonomic characters.

Finally it can be concluded that :

1- In spite of that,the extensive use of the conventional pesticides in controlling pests in Egypt, results indicate that such organisms are still attaining considerable level of spread. Thus, it is not so difficult to reconstruct their populations to levels enough to supress, efficiently pest populations under economic injury levels in the Egyptian Environment.

2. It is, so expected that such predators may have acquired considerable levels of pesticide resistance, that enable them to blend safely in integrational control programmes, until the complete shift to the biological ones would exist.

3. The restriction of using chemical compounds in pest control, in Egypt is considered of great impostance for

mankind and his domestic animals, which can avoid injurious effects of pesticide residues that may be stored in food products in addition to the reduction of environmental pollution.

4. The concept of "pest management " must replace " pest control" for the apprehension of the necessity of attaining naturally balanced Ecosystem. So,integrational control programmes must be practically set up and applied, in which all control agents must be represented.

5. For the aim of practical applications, the following studies are further currently needed:

   A) Complete survey of the egyptian faunatic representatives of pest predators and parasites in various localities in the country.

   B) Ecological studies for various detected species, including biotic and abiotic factors affecting their populations.

   C) Biological studies on different species comprising, prey-predator intactions, host preferences, fecundity and reproduction potentiality, efficiency of different stages of certain predator in reducing density of certain pest population and the role of some species in controling some medical pests or reducing environmental pollution.

Such studies are preliminary needed, for the establishment of efficient supervised pest management programmes, under which various pest populations can be permanently kept at levels under economic injury levels. Additonally, the saving of financial cost and environmental pollution will be also implicated.