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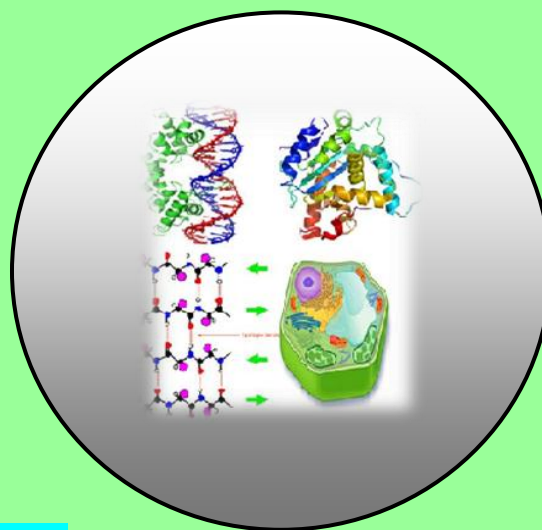
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RESEARCH PAPER

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Identification of Rodents in the Experimental Station of the Faculty of Agriculture, El-Kawamel City, Sohag University, Sohag Governorate, Egypt

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ABSTRACT

*The present work was aimed to identify of rodent species at the Experimental Station of the Faculty of Agriculture, Sohag University in El-kawamel city, Sohag Governorate, Egypt during 2013-2015 years. The results were revealed the presence of two species of rats included the white bellied rat, *Rattusrattus frugivorus* the dominant species from the Nile grass rat, *Arvicanthis niloticus*. These results to be used in the development of a future plan in effective strategy for implementation of rodent management programs in cultivated and newly reclaimed land in Egypt.*

Key words: Arvicanthis niloticus, Rattus r. frugivorus, Experimental Station and Dominant species.

INTRODUCTION

Rodentia is one of the most important mammalian orders which have a great numbers of rodent species with their effect on the environment. Directly, through their destructive feeding habits and indirectly by a stable food items for many predators in the food chains. In Egypt changes in the agro-ecosystem, during the last 40years, have had a great effect on the distribution and abundance of field rodent population (El-Sherbiny, 1987). Rodents are implicated in many types of damage, including crop and tree damage, structural property and cable damage, disease transmission (Witmer *et al.*, 1998).

Rodents are known for their high reproductive potential; however, there is much variability among species as to the age at first reproduction, size of litters, and the number of litters per year. Under favorable conditions, populations of some species such as the microtines (e.g., voles) can irrupt, going from less than 100 per ha to several thousand per ha in the period of a few months (O'Brien 1994). There are many interesting dynamics to various rodent populations that should be understood to better facilitate their management and to

reduce damage. The population goes through an annual cycle that may include high and low densities, active and inactive periods, reproductive and non-reproductive periods, and dispersal periods. To avoid inclement periods, some species exhibit winter dormancy (hibernation), and some species have summer dormancy (estivation) during hot, dry periods. Some species exhibit multi-year cycles; for example, the microtines often reach population peaks (irruptions) every 3-5 years (Edge *et al.*, 1995 and Wolff *et al.*, 1997). All rodents require food, shelter, and water. The shelter provides protection from predators, inclement weather, and a favorable place to bear and rear their young. Although rodents require water, those water requirements vary greatly by species. Because rodent food and cover (i.e., vegetation) can be influenced by human activities, there has been considerable development of strategies to reduce populations and damage by manipulating vegetation. We will discuss some of these habitat management approaches, but caution that many of them have not been thoroughly investigated or tested on a large scale (Barras and Seamans, 2002). This study aims to identify the rodent species to be used in the development of a future plan in effective strategy for implementation of rodent management programs in newly reclaimed land in Egypt.

MATERIAL AND METHODS

The present work was carried out in the experimental station of the Faculty of Agriculture, El-Kawamel city, Sohag University during 2013-2015 years. It is located in newly reclaimed area at the Egypt Western desert area (15km. west of Sohag Governorate). This area has been planted from a long period about (15 years) with isolated patches of vegetables, wheat, Egyptian clover, alfalfa and certain orchards, 15 wire-box traps were baited and distributed twice every 15 days at 6pm and collected at 7am, The captured rodents were classified and recorded.

RESULTS

Data in Table (1) found that the presence of two species of rats included the white bellied rat, *R. r. frugivorus* the dominant species from the Nile grass rat, *A. niloticus*. The population of rodent species at second year higher than first year. Generally, *R.r. frugivorus* was the most dominant species in the experimental station of the Faculty of Agriculture, El-Kawamel city, Sohag University.

DISCUSSION

- 1- *Rattus r. frugivorus* the dominant species, this may be due to the presence of attributed to the availability of food and shelter as well as prefers trees for nesting. On the other hand this may be due to the inter-specific competition between this species and other species.
- 2- The population of rodent species at second year higher than first year this may be due to In Egypt, the changes of the environment by reclamation the desert and increase the cover plant in this area, so have been a great effect to the distribution of rodent species on abundance in the study area (El-Sherbiny, 1987; Desoky, 2007 and Abdel-Gawad (2010).
- 3- The differences in species composition of rodents depending on locality, neighboring, habitat type, inter specific competition and preferred food (Desoky *et al.*, 2014).

4- Identification of rodent species in the study area can be used in the development of a future plan in effective strategy for implementation of rodent management programs in newly reclaimed land in Egypt.

The results similar with Ali (1985) recorded six species of rats and mice in Sohag Governorate. The species density percentages were arranged quantitatively in the following descending order *R. norvegicus* (35.17%), *A. niloticus* (19.86%), *R. r. frugivorus* (19.39%), *R. r. alexandrinus* (13.88%), *M. musculus*, (11.00%), *Acomyscahirinus* (0.72%).

Abdel-Gawad (1987) found those, three rodent species *A. niloticus* (Desm.), *R. r. frugivorus* and *Gerbillus* spp Desm., in Wady El-Assiuty area, Assiut Governorate. He noticed that, *A. niloticus* (Desm.) preferred areas planted with the field crops and some parts under cultivation beside old cultivated land while *R. r. frugivorus* was found in citrus orchards and around fanners buildings, whereas *Gerbillus* spp Desm., lived in desert and semi-desert parts where wild plants and weeds were grown.

Table 1. List of rodent species collected in the Experimental Station of the Faculty of Agriculture, El-Kawamel City, Sohag University, during 2013-2015 years.

Species	Family	Years		Common name
		2013/2014(1)	2014/2015(2)	
<i>Rattusrattusfrugivorus</i> (Linnaeus)	Muridae	++	+++	white bellied rat, date palm rat
<i>Arvicanthisniloticus</i> (Desmarest)		+	++	Field rat, grass rat, Nile rat , Nile grass rat

- +++ = High population
- ++ = Moderately population
- + = Slightly population

Desoky *et al.*, (2014) finding is in agreement with The results show in the experimental station of the Faculty of Agriculture, El-Kawther city, Sohag University, found that the presence of three species of rats included the Lesser garbia, *Gerbilluss* was recorded (1.08%) from newly reclaimed area; the Nile grass rat, *A. niloticus* (4.44%.) This may be attributed to the availability of food in neighbored field crops and vegetables plantations also, the white bellied rat, *R. r. frugivorus* the dominant specie (94.27 %.) This may be due to several factors e.g., intra-specific competition, fecundity increasing and in habitat the ecosystems in which poultry buildings established in the faculty farm the presence of palm trees in the preparation of farm animal production, or poultry farm nearby, this provides shelter and increase in feed stores.

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REFERENCES

- Abdel-Gawad, K.H. (1987).** Seasonal distribution of rodent species and their associated ectoparasites in new cultivated lands. *Assiut J. Agric. Sc.*, 18 (3): 343-352.
- Abdel-Gawad, K.H. (2010).** Rodent species composition in the present compared with past, the 5 Scientific Conferences for Agric. Assiut Univ. Oct. 16-17, 2010 (159-167).
- Ali, M.K. (1985).** Studies on rodents and their ectoparasites in Sohag Governorate. M.Sc. Thesis Fac. Agric., Assiut Univ.
- Barras, S.C. and Seamans, T.W. (2002).** Habitat management approaches for reducing wildlife use of airfields. Proceedings of the Vertebrate Pest Conference 20:309-315.
- Desoky, A.S.S. (2007).** Management strategies for rodents within different ecosystems. M. Sc. Thesis, Fac. Agric. Assiut Univ. 124.
- Desoky, A.S.S., Baghdadi, S.A.S. and Ahmed, H.S.K. (2014).** Population density and seasonal distribution of rodent species at sheep farming in El-Kawther City, Sohag region, Egypt. *J. Plant Prot. and Path.*, Mansoura Univ., Vol. 5 (10): 903- 907.
- Edge, W.D., Wolff, J. and Carey, R.L. (1995).** Density-dependent responses of gray-tailed voles to mowing. *Journal of Wildlife Management* 59:245-251.
- El-Sherbiny, A. H. (1987).** Cyclic fluctuation in rodent population: Review of current researches. *Egypt wild and not resources*, Vol. 19 pp 17.
- O'Brien, J.M. (1994).** Voles. Pages B177 – B182 in Hygnstrom S, Timm R, Larson G, editors. Prevention and control of wildlife damage. Cooperative Extension Service, University of Nebraska, Lincoln, NE, USA.
- Witmer, G., Campbell, E.W. and Boyd, F. (1998).** Rat management for endangered species protection in the U.S. Virgin Islands. Proceedings of the Vertebrate Pest Conference 18:281-286.
- Wolff, J.O., Schauber, E.M. and Edge, W.D. (1997).** Effects of habitat loss and fragmentation on the behavior and demography of gray-tailed voles. *Conservation Biology*, 11:945-956.

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