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Preference of rodent baits in wire box traps under field conditions

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Abstract

Four rodent baits were used included cucumber, tomato, bread and potato. Results indicated that cucumber and tomato baits attracted the highest number of rodent species followed by the other baits. This may be useful to the preparation of rodent baits in rodent control, or to capture rodent for use as an experimental animal. Baits preference tests should be done periodically to find out the proper bait for rodenticides formulation and to overcome the shyness of rodent baits.

Keywords: rodent baits, cucumber, tomato baits, rodent control, capture rodent

Introduction

In some cases, rodenticides cannot be used, or only in limited ways, and other approaches (e.g. traps) are employed (Timm, 1994). Additionally, the presence of invasive rodents must be monitored to assess the success of eradication efforts and to provide an early alert system for newly invading species. Methods for monitoring include: traps, chew blocks, track stations or remote cameras (Witmer *et al.*, 2007). These methods require effective attractants, especially when rodent densities are very low. Effective attractants may also help get rodents to widely placed bait stations used for detection or lethal removal, and could help to detect and prevent reinvasions (Witmer *et al.*, 2008). The present work aim to study of food preference of rodent baits in wire box traps.

Materials and methods

This study was carried out in poultry building at the Experiment Station of the Faculty of Agriculture farm, Assiut University, Egypt during 2004 year. The wire box traps were baited with four different baits (cucumber, bread, potato and tomato). Five traps were baited by one and distributed randomly, three times every week at 6pm and collected at 7am for two months. The captured rodents were classified into males, females and recorded.

Results and discussion

This study was carried out under the field conditions in the Faculty Farm (grain storages) to reveal the preference of the trap baits. In this study we used some vegetables and food materials such as cucumber, tomato, bread, potato.

Data in Figure (1) show that cucumbers bait was the most attractive to rodents species. This bait attracted about (37.04%) from total captured males, tomato (25.93%), while the lowest was potato bait (16.66%). The highest captured females were recorded in cucumber bait (37.50%) from total captured females, (tomato 25%) and the lowest was potato bait (12.50%). The average percentage of baits in general was highest in cucumber (37.27%) and the lowest was obtained in potato bait (14.58%). The results showed that the males were (62.79%) more attractive to the trap baits than females (27.21%). This may be due to the females preferred to stay in the burrows to care these young.

Generally, the rodent species preferred the vegetable baits in the traps. These may be useful in preparation of rodenticides baits in rodent control, or to capture rodents for use in the experimental studies. Baits preference tests should be done periodically to find out the proper bait for rodenticides formulation and to overcome the shyness of rodent baits.

Most publications concerned with food preference of the common rodents was done by several authors such as : Abdel-Gawad and Maher Ali (1982); El-Deeb *et al.*,(1985); Saied (1985); Abazaid (1990); Abd el-Rahman *et al.*, (1991) Shafi *et al.*, (1992); Jackson (2001); Ahmaed (2006) and Baghdadi (2006).

Abdel-Gawad and Maher Ali (1982) in Assiut Governorate of Egypt, found that crushed maize and sorghum were the most preferable baits for all species of rodents in Upper Egypt and can be recommended as

carriers for rodenticides. El-Deeb *et al.*, (1985) in Beni-Seuf of Egypt, obtained that the most preferable foods for Nile rat *A. niloticus* (Desm.) were wheat followed by maize and sorghum. The least accepted baits were dried bagasse and cotton seed cake. Saied (1985) in Egypt found that *Acomyes cahirinus* prefers the crushed maize which mixed with sesame oil than the cotton seed oil.

Abazaid (1990) in Qena Governorate of Egypt studied three items in triple or double cup tests for their acceptability to three species of rodents. In double cups test, the bagasse was found to be more preferred than wheat or crushed maize for the three species. Also, in the triple cups test, bagasse was more preferred for *R. r. frugivorus* (Linn.) and *R. r. alexandrinus* (Linn.) than crushed maize and wheat. For *A. niloticus* (Desm.), the consumption was nearly equal from bagasse and crushed maize, but higher than that from wheat. Abdel-Rahman *et al.*, (1991) in Ryan of Qatar state, mentioned that acceptance of non toxic bait by the rat population, was related to their calories and nutritional values. Peanuts and wheat were the most favorable. While maize, barley and rice were the lowest accepted by the rats. Peanuts and wheat were the best carriers for rodenticides followed by maize, barley and then rice. Shafi *et al.*, (1992) in Pkistan, stated that in order to increase poison bait acceptance, six taste additives yeast, egg shell, egg yolk, sheep blood, chicken blood and minced meat were incorporated 2% (w/w) individually in a bait base of wheat flour and broken rice. Under no-choice tests (single feed), *R. norvegicus* Berk., showed potential for preference of additive baits. In paired-choice tests (two feed), baits with yeast and egg shell were significantly preferred against plain bait (reference). Yeast additive was first and egg shell second in order of preference. A similar order of preference was observed in three feed choice tests. Yeast additive, which was highly preferred in choice tests, increased acceptability (palatability) by 68.2% and 60.1% of the bait containing brodifacoum and bromadiolone, respectively.

Jackson (2001) in USA, reported rodenticides bait can control be effected. Grain bait mixtures (often with flavors, sugar, and vegetable oil added) are the basis of most control programs. Some baits are palletized; others, left in granular form. Shelf-life is good as long as the bait is protected from environmental extremes. For sewer and moist environments, wax blocks have been marketed. Fresh fruits, vegetables or meats were highly attractive to rodents. Ahmed (2006) in Assiut Governorate of Egypt, reported that under laboratory condition crushed maize, crushed sorghum and crushed wheat was the most preferred food to the Nile rat, *A. niloticus* (Desm.) and house mouse, *Mus musculus* Linn., followed by long sorghum, barley, crushed broad bean and cobs+ 4% molas. Baghdadi (2006) in Assiut Governorate of Egypt, reported that under laboratory condition wheat, peanut, maize and sunflower was the most preferred food to the Nile rat, *A. niloticus* (Desm.) followed by short sorghum, sugarcane refuse and 4% molas+ sugarcane refuse.

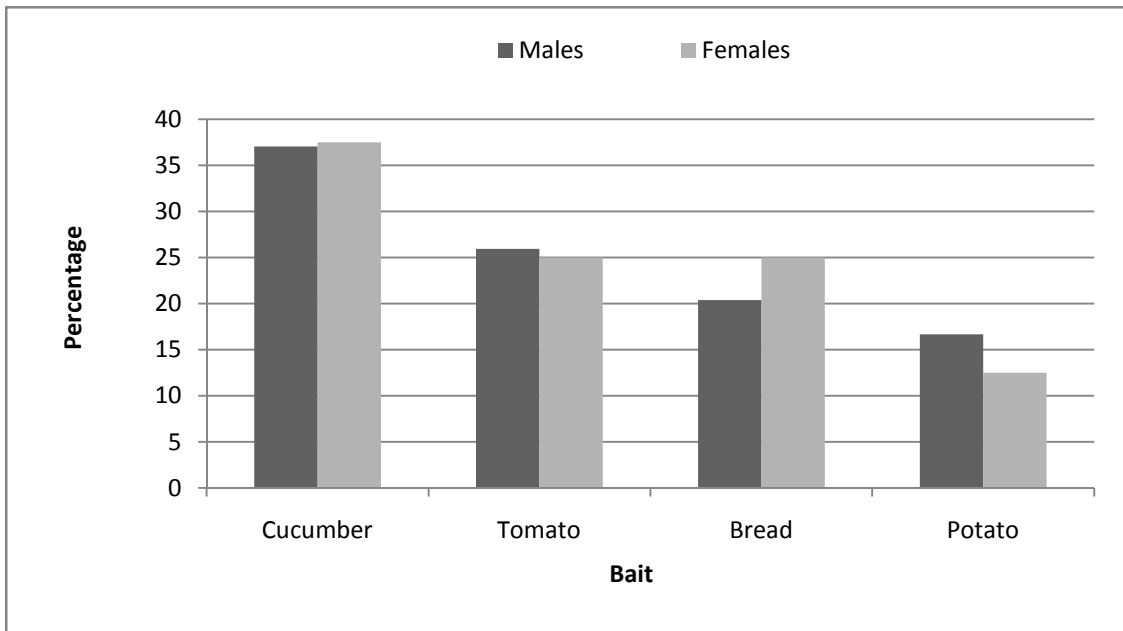


Figure (1): Effect of baits types on attraction of rodents' males and females under field conditions at Assiut University during 2004.

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