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Fecundity study of a white terrestrial snails Monacha obstructa (Pfeiffer, 1842), (Gastropoda: Pulmonata) in AL-Kamalia farms in the holy city of Karbala

By

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Abstract

The research includes measuring the fecundity of the Monacha obstructa on the basis of the length of the shell of the mother snail and the number of eggs that it lays in one reproductive season, The study also included the standard lengths of a group of 30 snails in the study, which included measuring each of (shell length, shell width, length / width , Aperture height, Aperture width, Aperture height / Aperture width) also included the shapes and sizes of eggs of M. obstructa snails from inside their incubators.

Keywords: AL-Kamalia farms; white terrestrial snails; Pfeiffer, 1842

Introduction

Snails have great importance in our daily life and at all levels, economically, environmentally and their reproduction is of special importance [1]. M. obstructa is the most common and widespread land snail in large numbers in the fields of alfalfa, wheat, cotton, vegetables, and some ornamental plants. This type spends the summer season hiding under Weeds, and its activity begins with the beginning of the fall season and the end of the spring season, and the reason for its name is glass because it is translucent white. It belongs to the class Gastropoda [2]. Lung snails are animals that breed and fertilize each other in pairs to fertilize the eggs internally through a reproductive opening on one side of the body, near the forehead, through which the external genitalia are extruded so that sperm can be exchanged. Then fertilization occurs and the eggs develop. Each brood may consist of up to 100 eggs. Garden snails bury their eggs primarily in shallow topsoil while the weather is warm and humid, usually 5 to 10 cm deep, burrowing with their foot. Egg sizes vary between species, from 3 mm in diameter in the orchard snail to 6 mm in diameter in the giant African land snail. After two to four weeks of favorable weather, these eggs hatch and the young ones emerge. Snails may lay their eggs once a month [3].

Material and method

The samples were collected from Kamalia farms in Karbala governorate during November 2022, bring the samples to the lab and put them in the glass basin (50x50x70cm) to monitor its behaviors and movements and mingle for the purpose of mating. After that, measurements were taken (length, width of the shell, length and width of the shell opening)

[4]. Each snail was placed in a special box with food for the purpose of observing the laying of eggs and collecting them. The eggs were also collected and the numbers of eggs were recorded, each according to the length of the shell. The mother snail that laid eggs, extracting the snail fecundity percentage according to the straight line equation [5]. Calculating the median, standard deviation, and variance for the standard dimensions of the mother snail shell, with photographic documentation of the eggs, their sizes and shapes.

Results and Discussion

Table No. (1) Shows the morphological shape of M. obstructa and represents the main features of this type of land snail, it can be further distinguished on the basis of the shape of the shell and dimensions [6].

Table No. (2) Shows the linear relationship of fertility showed that the number of eggs is directly proportional to the length of the shell of the mother snail. A snail with a shell length of 12.9 mm lays (27) eggs, while a snail with a shell length of 9.2 mm lays only (10) eggs [5]. Image No. (1) Shows the shape of the snail from the dorsal and ventral view. Image No. (2) Documented the shape of the egg for this land snail, where it is spherical with a color similar to a single egg white. Yellowing, and this is an indication of the embryonic development taking inside the egg [7].

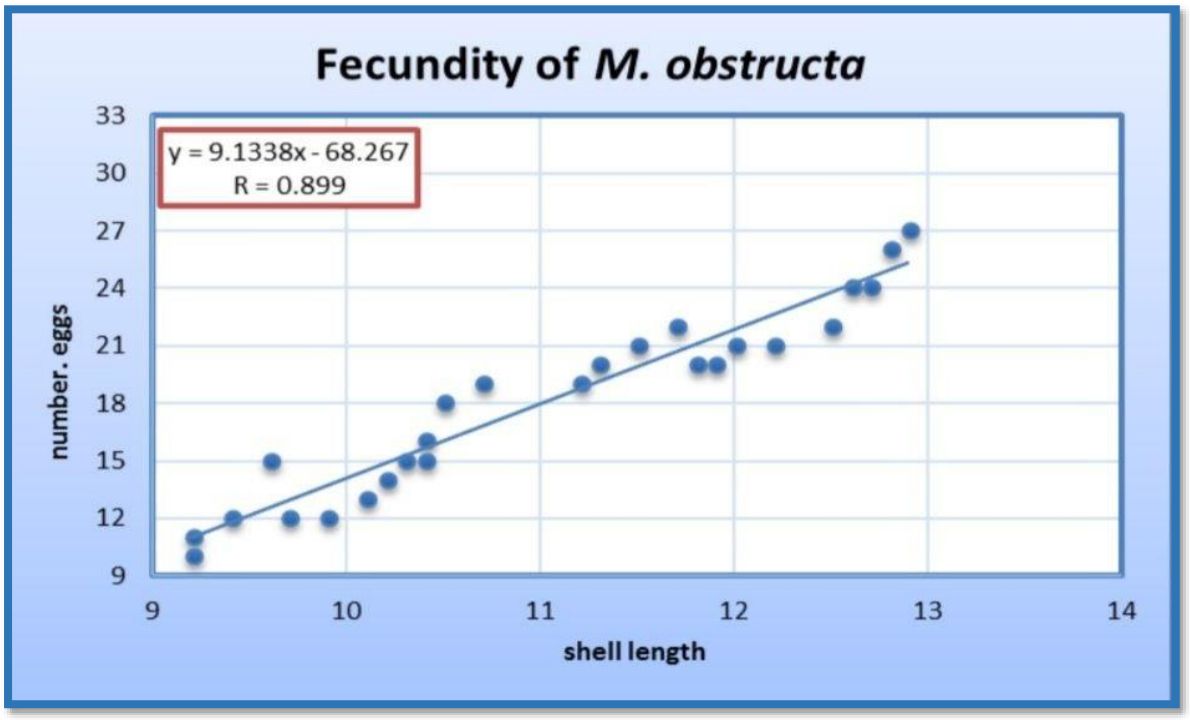
Image (1) *shows the shape of a Monacha. obstructa*
A- Dorsal view B- ventral view

Image (2) *show the shapes and size of Monacha obstructa*
Size of the eggs B- Eggs and mother snail C- Eggs from inside the incubators

Table 1: *Linear shell measurements (mm) of the snail Monacha obstructa*

Characters (mm)	Range	X	Sd±	S²	N
Shell length	13.2 – 9.2	11.25	1.287	1.656	30
Shell width	10.6 – 6.7	8.8	1.429	02.044	30
Length/width	1.24 – 1.37	1.28	0.460	0.212	30
Aperture height	6.7 – 3.8	5.35	0.919	0.845	30
Aperture width	8.5 – 4.6	7.05	1.344	1.808	30
Aperture height /aperture width	0.78 – 0.82	0.775	0.0679	0.0046	30

Table 2: *Fecundity of Monacha obstructa based on the length of the snail shell*



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