

EFFECT OF FERTILIZER (DAP) ON HEART BEAT RATE OF THE CRAB *Barytelphusa Cunicularis*

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ABSTRACT

The rate of heart beat of the crab, *Barytelphusa cunicularis* increases from 24 to 48,72 hours and steep decrease was observed at 96 hours on wards when exposed to lethal concentration of fertilizer DAP 0.25 ppm.

Introduction

Crustaceans are the best studied invertebrates, structurally and functionally the heart of crab differ markable from that of the other animals Crustacean possesses on open vascular system for its haemolymph circulation and cardiac organ which functions, as an importing pumping centre. These are classified generally in to two types based on morphology alone. One is compact or globular shape observed commonly in the decapods. The other is slender or tubular observed in many orders, such as stomatopod, Amphipoda and isopoda.

A cardio-vascular system is change due to changing the environmental conditions have been studied in *Barytelphusa cunicularis* by Tonapi and vagesh (1984) MC Gaw (2006) has reported that the heart beat increased slightly and cardiac output and ventilation rates remained stable, when crab, *Cancer gracilise* were exposed to low salinity. Styryshave et al. (2003) studied the influence of salinity affect the rate of heart in shore crab *Circinus maenads*.

The organic and inorganic compounds also effect on rate of heart beat. Hence an attempt was made to observe the heart rate of fresh water crab, *Barytelphusa cunicular is* in effect fertilizer i.e. DAP at 0.25 ppm.

Materials and Methods

The fresh water male crab, *Barytelphusa cunicularis* was used for experiment to observe the effect of fertilizer DAP (0.25ppm) on rate of heart beat Only the male crab of average size 30-40gms. Were selected for experimentation. A group of control animals were maintained. After each successive time period of 24,48,72 and 96 hours the experiment was conducted in living condition of animals after removing sizeable portion of its carapace

and expose heart. Heart beat was conducted with the help of stop watch heart beat /minute. The experiment was performed at room temperature at 27°C. The glucose was added to ringer before experimentation

Result

The heart exhibit differential effect when exposed to fertilizer DAP. The fertilizer DAP accelerates the heart beat rate from 24 hours to 72 hours on exposure to lethal concentration of DAP 0.25 ppm. The heart beat activity slightly increases at 24 hours, steep increase at 48 hours and maximum at 72 hours there is steep decrease in heart rate is observed at 96 hours, show that the animal tries to settle down to the toxic medium. Over all the rate of heart beat shows increasing trends except 96 hours (shows in table 1.1).

Effect of Fertilizer (DAP) on the rate of heart beat of fresh water crab, *Barytelphusa cunicularis* after exposure lethal concentration of DAP (0.25ppm). The rate of heart beat expressed in terms of beat/ min.is the average of 6 observation \pm S D Table.

Time in Hours	Control	Concentration of Fertilizer (DAP0.25ppm)
24	36 \pm 0.83	42 \pm 1.30
48	38 \pm 0.83	45 \pm 1.14
72	42 \pm 2.70	51 \pm 2.68
96	37 \pm 1.22	38 \pm 1.30

Discussion

Heart beat frequency has been studied in numerous crustaceans, with conclusion that alteration heart rate occurs with the changes in the environment, stimuli, visual stimuli, which influence heart rate significantly.

Simultaneously temperature, salinity of water all can have impact upon heart rate of aquatic crab, Lamier (1966), Florey and Kriebel (1974). Hill and Koopowitz (1975), Hume and Belind (1976).

The rate of heart beat is very important physiologically activity of crabs and it help in circulating the haemolymph in the body with

the help of its rhythmic beating is observed Lock wood 1968. There are natural stresses, such as Climate change food availability, and human induced stressed. Such as pollution or degrading activity changes of heart beat of animal like crab and other organisms respond to stress in their environment.

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