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RESEARCH NOTE

Toxic effect of aqueous extract of garlic on erythrocyte sedimentation rate in fish, *Channa punctatus*

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ABSTRACT : In the present investigation, the effect of sub - lethal concentration of garlic aqueous extract on fish, *Channa punctatus* was studied after 24 hrs, 48 hrs, 72 hrs and 96 hrs exposure. Different concentrations of garlic (15ppm/lit, 20ppm/lit) were used against erythrocyte sedimentation rate (ESR) and results showed the gradual increase in the ESR, ranging (7.25 – 8.10 mm/hrs) for 15 ppm/lit for (24 hrs – 96 hrs) and (7.80 -9.11/lit) for 20ppm/lit, respectively.

Key words : Garlic, Erythrocyte, Sedimentation rate, *Channa punctatus*

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The presence of predatory and weed fishes in culture pond is a serious problem for culturing edible freshwater fishes in India. This has adversely affected the development of fish production and to solve this problem the use of synthetic pesticides is most common practice in many aquaculture farms. Due to their long-terms persistence in the water bodies and fish body, it adversely affects the quality of fish and their status leads the contamination of aquatic environment. In order to over come these problems studies were being carried out on the feasibility of using biopesticides or plant extract. Now-a-days, use of medicinal plant is as effective alternatives for synthetic pesticides and fertilizers. In the present investigation, the toxicity of aqueous extract of garlic has been observed on erythrocyte sedimentation rate (ESR) (mm/hr) in fish *(Channa punctatus).*

Experimental animal :

Healthy specimen of fish (C*hanna punctatus)* were collected from the local fish market and were transferred into glass aquaria containing 25 lit. Of chlorine free water for acclimatization after dipping them into low concentration of potassium permanganate for a few seconds in order to check microbial infection. The determination of LC50 w as analyzed statistically by log dose/probit regression line method.

Preparation of aqueous garlic extracts :

The cloves of garlic (*Allium sativum*) were collected local market of Nanded city. Plant material was dried and grind. To prepare the aqueous extract, the powder was dissolved in water at a concentration for 5g per litre for 24 hours at room temperature. The mixture was filtered and the extract (5g/l) was used immediately in the experiments in different dilutions.

Many significant changes were induced by the garlic aqueous extract toxicity in the hematological parameters like erythrocyte sedimentation rate (ESR) of fish, C*hanna punctatus* as shown in Table 1.

The ESR (mm/hr) increase in ESR (mm/hr) from 7.25 mm/hr to 8.10 mm/hr for 24 hrs to 96 hrs, respectively was recorded in 15 ppm of garlic aqueous extract concentration and similar increase in ESR (mm/hr) from 7.80 mm/hr to 9.11 mm/hr for 24 hrs to 96 hrs, respectively

Table 1: ESR (mm/hr) in the blood of *Channa punctatus* after garlic aqueous extract treatment in different exposure periods

Conc. in ppm	Control	24 hr.	48 hr.	72 hr.	96 hr.
15 ppm	7.20 ± 0.09	7.25 ± 0.07	7.48± 0.69	8.00 ± 0.02	8.10 ± 0.64
20 ppm	7.20 ± 0.09	7.80 ± 0.15	7.92 ± 0.45	8.50 ± 0.88	9.11 ± 0.28

Each reading is a mean of six observations ± S. D., ppm=parts per million