

NOTES

Use of Aspirator for Aeration in Fish Culture

Presence of dissolved oxygen in its optimum level in aquatic medium is a critical factor in fish culture management. Normally natural factors like water flow, wind action, wave action, mechanical agitation of water and oxygen from photosynthetic production of aquatic flora are the major sources of dissolved oxygen. But in recent years artificial aeration is being provided to the aquatic medium with the help of mechanically or electrically operated devices. The purpose of aeration is to mix oxygen with water and several workers (Boyed & Tucker, 1979; Mitchell & Kirby, 1976) have experimented with artificial devices.

With a view to solve the long standing problem of dissolved oxygen depletion in fish culture and hatchery water management, a new method has been developed. The apparatus used is a simple aspirator (Fig. 1). The aspirator is connected to a circulatory water passing through a tube connected to water pipes. With the flow of water, vacuum is created in the side tube of the aspirator. Air is sucked in and gets mixed with the flowing water. The outgoing water is directly released into culture or hatchery water.

Laboratory experiments showed that at an average water temperature of 30°C, dissolved oxygen could be raised from an initial level of 7.8 to 8.6 ppm. Out-door experiments at water temperature of 34°C showed that the new device could increase the oxygen content from 5.8 to 7.0 ppm.

Using continuous flow in a circular tank with approximately 1,000 liters of water, dissolved oxygen was raised from 5.6 to 8.0 ppm at a water temperature of 28°C when the water is allowed to flow at the rate of 2.30 liter per min through the aspirator for 2 h.

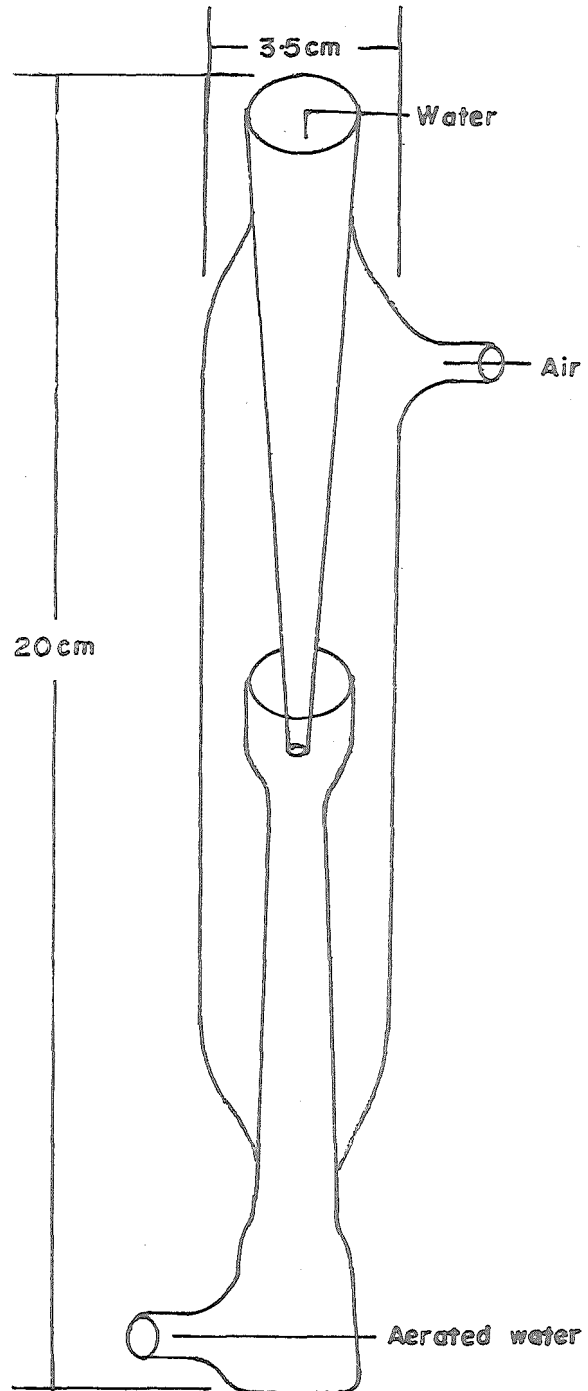


Fig. 1. Aspirator.

Above trials indicated that a single aspirator could be used efficiently when about 1,000 litres of water is used in bioassay experiments, breeding experiments or in hatchery management work with continuous flow system or re-circulatory water system.

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References

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Kakdwip Research Centre of
CIFRI, Kakdwip - 743 347

S. R. DAS, J. G. CHATTERJEE,
D. NATH AND A. HAZRA