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Effect of Endrex on Aquatic Flora

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Endrex, a chlorinated hydrocarbon, has been used extensively as a piscicide by the Tropical Fish Culture Research Institute at Malacca, Malaysia to clear ponds of unwanted populations of fish ; particularly *Gambusia affinis* (BAIRD & GIRARD), which has proved to be a serious pest, attacking and devouring broods of *Tilapia*, and in other ways constituting a danger to the experimental work (2). The Endrex is usually applied in aqueous suspension to the ponds after the water level has been lowered to within a few inches of the bottom. It has been estimated that a concentration of about 0.018 p. p. m. in the residual water is achieved during the treatment of the ponds. The lethal effect, however, decreases with time and after about three weeks the ponds may be restocked with fish.

The effect of the application of Endrex on the pond flora is not known, and as it is difficult to assess by direct observation in the field, a series of experiments were carried out under laboratory conditions. Various concentrations of Endrex were added to cultures of equal weights (5 gms. wet wt.) of *Hydrilla verticillata*, the principal macrophyte which is also an important fish food. The same concentrations of Endrex were also added to culture solutions containing equal volumes (2 mls.) of a phytoplankton suspension obtained from the ponds. After one month, the optical density of the plankton cultures was determined on aliquots, and the gain in weight of the *Hydrilla* was measured by difference. The results, which are the means of duplicate cultures, are shown in fig. 1.

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(2) Tropical Fish Culture Research Institute. Malacca, Annual Report (1963).

The optical density of the phytoplankton cultures, which at the end of the incubation period consisted chiefly of *Chlorella* spp., decreased as the concentration of Endrex increased, up to a value of 8 p. p. m. Endrex. Thereafter the values tended to remain

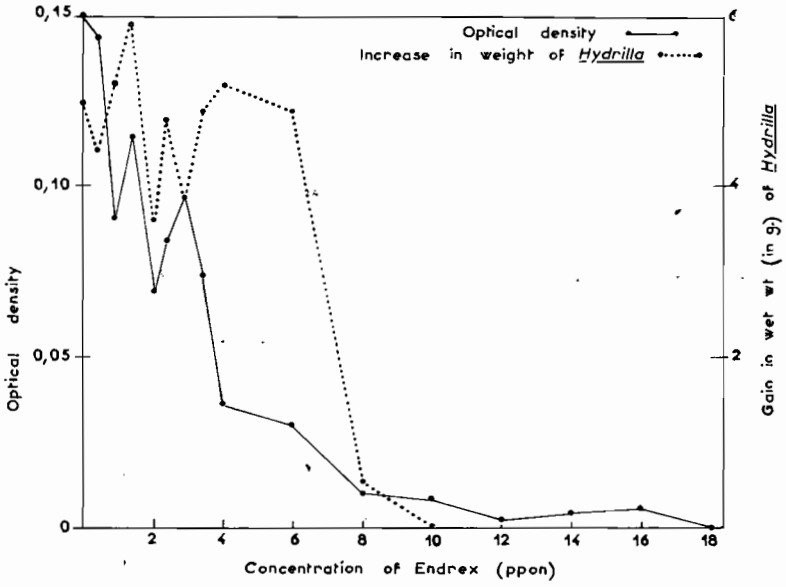

FIG. 1. — Effect of Endrex on the growth of phytoplankton and *Hydrilla verticillata*.

constant at about the optical density of the nutrient solution plus Endrex only. The *Hydrilla* showed no response to concentrations below about 6 p. p. m. Endrex, but above this value Endrex appears to have a lethal effect. The results suggest that an application of 0.018 p. p. m. Endrex to the ponds would probably be followed by a slight temporary reduction in the density of the phytoplankton, while *Hydrilla verticillata* would not be affected.