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Microbial interference with hatch and survival of European eel larvae

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Recent research has significantly improved our knowledge and capabilities in the field of *in vitro* production of yolk sac larvae from European eel (*Anguilla anguilla*). Female broodstock European eels are matured by weekly administration of pituitary extract and male eels with hCG (human chorionic gonadotropin), which afford gametes for *in vitro* fertilization studies. The maturing process may lead to mass hatchings of up to ½ million larvae of which some survive the entire yolk sac phase. However, the rearing of larvae suffers from high larval mortalities, and water quality might be a crucial factor for larval survival in rearing systems.

By applying antibiotic treatment as a research tool, it was possible to determine the extent of microbial interference in the production of high numbers of good quality larvae. By controlling microbiota during egg and larval incubation, the egg hatching success and larval longevity more than doubled. Using scanning electron microscopic analysis it was observed that microbe inhibiting treatments reduced bacterial colonization of the eggs surface, which possibly cause reduced gas and ionic exchange across chorionic membrane.

These results suggest that future eel larviculture should not only focus on optimizing physical incubation conditions, but certainly also on the control over microbial interference.

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