

# Effects of different dietary supplementations on larval survival and growth of Japanese eel *Anguilla japonica*

Wan-Pin Su (5111)

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## Outline

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## Abstract

Decreases in natural stocks of Anguillid eels have become a serious concern worldwide. However, the catch of wild elvers has decreased year-by-year, and Japanese eel *Anguilla japonica* has been registered in the Japanese Red List as an endangered species. Although aquaculture technology has been improved markedly, the survival rate of leptocephali in captivity was quite low. Further improvements are necessary to produce glass eels commercially in sufficient number to meet the demands of aquaculture industries. This report was to investigate hen egg yolk (HEY) and skinned krill (SAW) as possible foods for rearing leptocephalus larvae of *A. japonica*. Results indicated that growth of larvae fed a mixture of SE and SAK in a feed trial of 58 days was about twofold higher than that of larvae fed a mixture of SE and exoskeleton (WAK). A mixture of HEY and SAK also had some dietary benefits for eel larvae, enabling them to survive for up to 58 days and to grow significantly. Besides, the effect of decreasing dietary lipids on larval survival and growth of *A. japonica* was reported. Larvae were reared for 3 weeks by feeding defatted shark eggs (DSE) and hen egg yolk (HEY). The highest survival rate was observed in the larvae fed DSE, and larvae fed HY showed the lowest survival rate. The best growth was found in larvae fed DSE, followed by shark eggs and defatted HY, and the worst growth was in HY-fed larvae. The effect of dietary propolis supplementation on growth performance, immune responses, disease resistance and body composition of juvenile eel was also studied. Results indicated that the optimum dietary propolis supplementation levels could be 0.25–0.5% for optimum growth and feed efficiency, and 0.5–1% for enhanced immune responses and disease resistance in *A. japonica*. In conclusion, these results show that HEY+SAK and defatted SE+HEY improve the nutritional value for eel larvae. In addition, propolis has been found to enhance growth, feed utilization, immune responses, disease tolerance and body composition in *A. japonica*.