

**INFLUENCE OF EGG COMPOSITION ON FERTILIZATION RATE
IN SABLEFISH, *ANOPILOPOMA FIMBRIA***

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EXTENDED ABSTRACT ONLY - DO NOT CITE

Rearing technology is being developed so that the sablefish (*Anoplopoma fimbria*) can be introduced into intensive aquaculture (Clarke et al., 1999). In order for this to become a reality it is necessary to have a reliable supply of juveniles for grow out. Egg batches from captive sablefish exhibit highly variable rates of fertilization and hatching. Although there is scant information regarding egg composition in sablefish, it has been found that constituents in eggs from captive halibut broodstock show considerable variation (Nortvedt et al., 2001). The present study was undertaken to examine important components in relation to fertilization rate in captive broodstock. It is expected that

identification of constituents that correlate with egg fertilization will assist efforts to improve egg quality and thus, juvenile production.

Eggs were stripped from sablefish held at the Pacific Biological Station. Subsamples of unfertilized eggs were taken from each batch for analysis of fatty acids, free amino acids, minerals and vitamins. The remaining eggs were fertilized and egg viability was assessed.

Egg fertilization rates for 29 batches of eggs varied from 1.7% to 95%. Correlations between the level of selected egg components and the percentage fertilization rate for the corresponding batches are shown in table 1.

Table 1. Correlation coefficients between egg components and % fertilization rate (bold font indicates statistically significant at $p < 0.05$ level).

Component	r	Probability level of correlation
Alanine	0.46	0.021
Arachidonic acid	-0.19	0.350
Asparagine	0.45	0.024
Aspartic acid	0.45	0.023
Docosahexaenoic acid	0.06	0.778
Eicosapentaenoic acid	-0.07	0.745
Folate	0.49	0.012
Glutamine	0.41	0.039
Glycine	0.55	0.005
Histidine	0.54	0.005
Isoleucine	0.38	0.059
Leucine	0.45	0.025
Lysine	0.56	0.003
Methionine	0.42	0.034
Phenylalanine	0.46	0.021
Selenium	-0.32	0.158
Serine	0.47	0.017
Taurine	0.49	0.013
Valine	0.38	0.058
Vitamin C	0.19	0.344
Vitamin E	-0.02	0.932

There were significant positive correlations among many of the free amino acid concentrations (mg/g wet tissue) and fertilization rate. However fertilization rate was not significantly correlated with fatty acid or mineral concentrations. Of the vitamins examined only the B vitamin folate had a significant positive correlation with egg fertilization.

The consistent relationship between fertilization rate and free amino acid levels may reflect the importance of the latter as osmolytes and substrates in energy metabolism of eggs and embryos (Rønnestad and Fyhn, 1993).

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