

Occurrence of Eye Abnormality in Cultured Red
Seabream (*Pagrus major*) and Induced Hybrid, Red
Seabream *Pagrus major* (♀) × Black Seabream
Acanthopagrus schlegeli (♂)

Iraida Germogenovna Syasina and In -Seok Park^{**}

Institute of Marine Biology, Far Eastern Branch of Russian Academy of Sciences,
Vladivostok 690-041, Russia

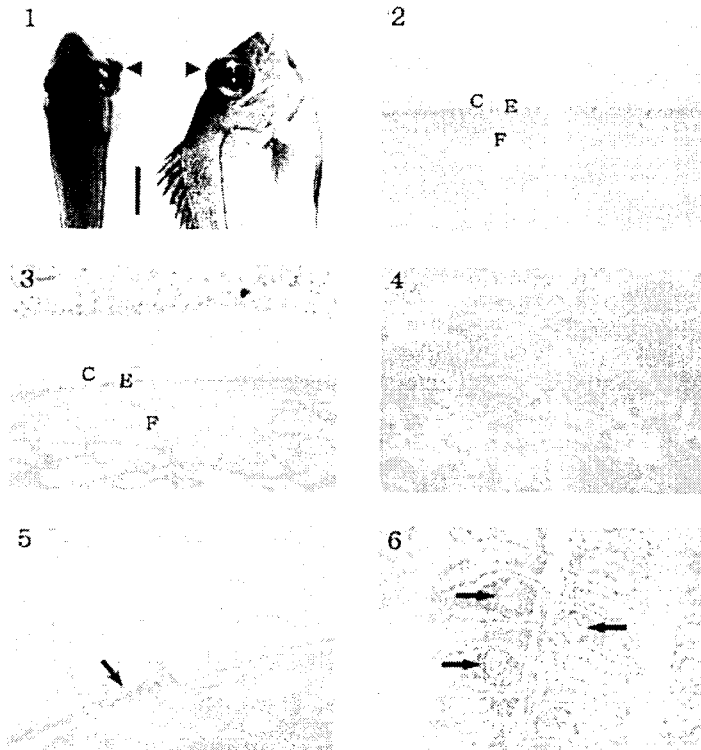
^{*}Division of Ocean Science, College of Ocean Science and Technology,
Korea Maritime University, Busan 606-791, Korea

Red seabream, *Pagrus major*, is a valuable aquaculture species in Korea, but spontaneous eye abnormality occurred in cultured individuals. The incidence of eye abnormality was 4% in the group of cultured red seabream. The abnormality was characterized by unilateral and bilateral exophthalmos, opacity and lens pathology. Lense prolapse was found in two cases. Lenses in diseased fishes was considerably small in diameter and eyes were deformed as a whole. In the group of induced hybrid red seabream *Pagrus major* (♀) × black seabream *Acanthopagrus schlegeli* (♂), the incidence of eye abnormality was the same 4%, but only opacity was registered. Opacity was also found in two of sixteen examined wild-caught red seabream. Histopathological changes of lenses in cultured red seabream included vacuolated cytoplasm of lens fibers, necrosis of fibers in central part of lens, folding and increase in thickness of lens capsule, and epithelial proliferation beneath the anterior lens capsule. In affected eyes no parasites or gas bubbles were found.

Diameter of lens and eye in normal and diseased red seabream, *Pagrus major*

Indices	Normal eye (cm)	Diseased eyes (cm)	
		Case 1	Case 2
D _{lens}	0.46	0.24	0.20
D _{1 lens}	1.16	1.40	1.33
D _{2 lens}	1.16	1.26	1.15
Thickness of eye	0.95	1.10	0.83

^{*}D_{1 lens}: diameter of lens; D_{1 eye}: diameter of eye in frontal plane; D_{2 eye}: diameter of eye in dorsal plane.



1. A cultured red seabream, *Pagrus major* with unilateral exophthalmos (arrow heads). Left: frontal view; Right: dorsal view. Bar indicate 2 cm.
2. Histological section of lens of control fish (HE, $\times 200$). C: capsule; E: epithelium; F: fibers, differentiated subcapsular cells.
3. Histological section of lens of diseased fish (HE, $\times 200$). Note severe vacuolization of lens fibers and flattened shape of subcapsular epithelial cells. Designation the same as in figure 2.
4. Necrosis in the central part of lens in diseased eye (HE, $\times 200$).
5. The increase in size of lens capsule and its folding. Note the epithelial hyperplasia (arrow) near capsule foldings (HE, $\times 200$).
6. Histological section of gill of cultured diseased red seabream. Note the cysts located in the interlamellar spaces which have pseudocapsule formed by fish cells (arrows). Cysts caused a tissue reaction, i.e. the hyperplasia and the lamellar fusion (HE, $\times 560$).

References

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