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Induction of Ovulation by HCG, LHRHa and Carp Pituitary in *Rhynchocypris oxycephalus* (Sauvage and Dabry)

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The effectiveness of human chorionic gonadotropin (HCG), a superactive analogue of mammalian luteinizing hormone releasing hormone (LHRHa) and carp pituitary (CP) for inducing ovulation in *Rhynchocypris oxycephalus* (Sauvage and Dabry) was examined, and the effects of the maternal hormone treatment on egg quality were evaluated. None of the control group and sham (saline injected) control group ovulated. The majority (76~96%) of the hormone-treated groups had ovulated within 2 days after hormone injection. Studies of egg quality, e.g., fertilization rate and hatching, demonstrated that good quality R. *oxycephalus* (Sauvage and Dabry) offspring can be produced after accelerated spawning by HCG, LHRHa and CP. The increase of egg diameter and number of eggs spawned may have been caused by the increase in the body weight of the females.

The response of ovulation in mature *Rhynchocypris oxycephalus* (Sauvage and Dabry) following injection on day 0 with saline, HCG (1,000 IU · kg BW), LHRHa (50 μg · kg BW) or CP (10 mg · kg BW)*

Treatment	No.of females	No. of ovulated (%)			
		Day 1	Day 2	Day 3	Total
Control	25	0(0.0)	0(0.0)	0(0.0)	0(0.0)
Sham control	27	0(0.0)	0(0.0)	0(0.0)	0(0.0)
HCG	25	13(52.0)	6(24.0)	0(0.0)	19(76.0)
LHRHa	29	9(31.0)	15(51.7)	0(0.0)	24(82.8)
CP	30	28(93.0)	1(3.3)	0(0.0)	29(96.7)

*HCG: human chorionic gonadotropin; LHRHa: luteinizing releasing hormone analogue; CP: powdered carp pituitary.

Influence of induced ovulation in mature *Rhynchocypris oxycephalus* (Sauvage and Dabry) following injection on day 0 with HCG (1,000 IU · kg BW), LHRHa (50 μg · kg BW) or CP (10 mg · kg BW) on gamete-somatic index (GSI), fertilization rate and hatching[*1]

Treatment	Days after injection					
	1[*2]			2[*2]		
	GSI (%)[**3]	Fertilization rate (%)	Hatching (%)	GSI (%)[**3]	Fertilization rate (%)	Hatching (%)
HCG	13.7±0.9 (13)[a]	89.3±6.7[a]	80.8±4.3[a]	11.2±0.5 (6)[a]	83.6±5.7[a]	70.8±6.1[a]
LHRHa	8.5±0.3 (9)[b]	77.7±5.9[b]	68.7±5.3[b]	12.3±0.7 (15)[a]	85.6±4.9[a]	74.1±5.7[a]
CP	10.7±0.5 (28)[ab]	92.4±5.1[a]	86.4±4.7[a]	7.8±0.3 (1)[b]	81.8±5.0[a]	76.8±6.5[a]

*1 HCG: human chorionic gonadotropin; LHRHa: luteinizing hormone releasing hormone analogue; CP: powdered carp pituitary.
*2 Values represent means±SD. Same superscript letter within each experiment and part denotes groups that were not significantly different.
*3 GSI=(b · a)×100, a: weight of fish before injection; b: weight of stripped eggs. Parenthesis indicate number of ovulated females.

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