

**Effect of induced gonadal development and starvation on
blood contents of *Anguilla anguilla* L.**

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Fishes of migrating silver Eel *Anguilla anguilla* were kept in special tanks under certain environmental conditions. Hormonal induction was carried out for gonadal development, experiments extended to 40-70 days without any food supply. Other fishes were starved for 330 days. Hemoglobin content, hematocrit value, red blood cell count and leukocytes contents were examined. Hematological studies were done to determine the alterations which occurred in the blood during induced gonadal development and starvation.

Blood was obtained by transection of the caudal area for all the previous examinations. A drop of blood was used to make the smear and stained with a May-GreenWeid (M-G) giemsa.

In female silver Eel treated with a combination of carp pituitary (CP) and human chorionic gonadotropin (HCG) to ovulation hemoglobin, hematocrit and red blood cells count were sharply decreased in samples taken from injected fishes (ripe stage). In male silver Eel treated with (HCG), hemoglobin and hematocrit continuously decreased with gonadal development from immature (control) to ripe conditions (spermiation), but there was no change in erythrocyte count (Table 1).

Leukocytes counts (white blood cells) did not vary during consecutive gonadal development in both sexes, this virtually reflected that there was no pathological state of the blood.

During starvation, the loss of body weight of males from 150g to 60g and females 700g to 250g was more severe followed by a marked decrease of lipid and protein contents in the whole body (Amin, 1988). Such reductions in body weight, lipid and protein contents were accompanied by significant decrease in all hematological contents of male and more significant in female silver Eels (Table 1).

Table 1 : Hematological changes on fish

	sex	control	ripe fish	starved fish
Hemoglobin concentration (g/100ml)	♂	11.9±0.51* (30)**	9.9±0.92 (20)	6.9±0.41 (10)
	♀	10.1±0.91 (30)	4.2±0.19 (6)	2.0±0.21 (4)
Hematocrit (%)	♂	34.1±2.9 (30)	27.1±1.91 (20)	21.9±1.53 (10)
	♀	30.1±2.9 (30)	24.6±2.01 (6)	20.1±1.67 (4)
Red blood cell count erythrocytes (mm ³)x10 ⁶	♂	2.61±0.19 (30)	2.63±0.29 (20)	0.88±0.28 (10)
	♀	2.47±0.15 (30)	0.90±0.12 (6)	0.67±0.25 (4)

* = mean ± standard deviation
** = number of fish

In conclusion, the experimented silver Eels during their gonadal development and complete starvation were anemic. The abnormality in the formation of hemoglobin which depend mainly on the amino acid and iron percentages lead to the formation of cell anemia. Such condition may further expressed by the extremely low values of hemoglobin, hematocrit and loss in red blood cells.

