

## V-VII<sub>2</sub>

### The Ripeness of Eggs of Induced European Eel (*Anguilla anguilla*), with notes on the changes of oil globules

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**ABSTRACT.** Results of this work were obtained from the comprehensive studies carried out on the European eel (*Anguilla anguilla* L.) inhabiting the Egyptian delta lakes between 1974 and to day. The used material was collected from lake Edku during the spawning migration in 1988-1989. Females of migrating silver eel were injected by carp pituitary (CP) and HCG. On reaching stage IV of maturation, the ovaries occupied the entire body cavity, oocytes enlarged in size (0.60 mm), nucleus was centrally positioned, nucleoli adherent to the nuclear membrane, and dense deposition of yolk granules.



Fig. 1

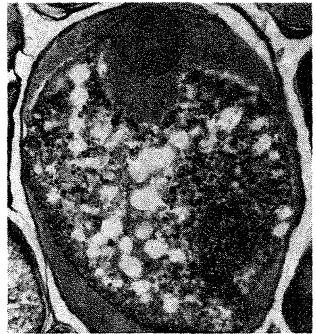


Fig. 2

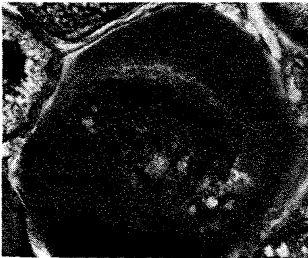


Fig. 3

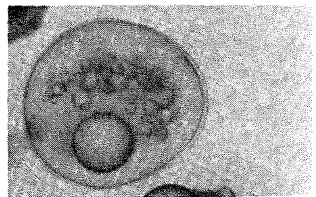


Fig. 4

After completion of trophoplasmic growth (stage IV of maturation), the directly following process of ripening occurred in 2-4 days, this period was classified into four distinguished phases. Each phase developed within a period of time from 15 to 24 hours. **First phase:** Egg diameter about 0.69 mm, nucleus started its migration toward the animal pole and began to lose its circularity. Yolk granules appeared in groups and began to diffuse thence homogenize in the periphery of oocyte (Fig. 1). **Second phase:** egg diameter about 0.80 mm, nucleus with disintegrated membrane appeared near the egg cover. Homogeneity of yolk granules increased, small granules appeared in red-orange stained (Fig. 2). **Third phase:** a characteristic increase in number and size of oil globules (more than 10), oocytes were more transparent, karyoplasm in the state of prophase and about full homogeneity of yolk (Fig. 3). **Fourth phase:** Ripening condition, variable numbers of oil globules, mostly less than ten, and counted from four to six in some oocytes. Other oocytes appeared with one prominent oil globule (Fig. 4).

Such artificial maturation brought about by the effect of hypophysial and hormonal injections reveals that CP and HCG could stimulate the gonadotropin secretion in female silver eel to develop its sexual cells in successive developmental stages. This result suggests that the amount of gonadotropin releasing hormone is one of the main factors which regulate the speed of gonadal development.