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ROLE OF ACID PHOSPHATASE ON DIFFERENT STAGES OF OVARIAN FOLLICLES IN COMMON MYNA (*Acridotheres tristis*)

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ABSTRACT

The acid phosphatase activity in common myna oocytes appear to exist either in association with the membranous structures or in the form of discrete granules, which form the part of yolk nucleus complex. This is also supported by the fact that the acid phosphatase positive sites during later stages of growth correspond to the fragments of Balbiani's vitelline body since the components of the Balbiani's vitelline body disperse in the cytoplasm and finally migrate to the sub-cortical portions of the ooplasm.Simillarly,the acid phosphatase activity is restricted to specific area of ooplasm and then it is detected only in the peripheral ooplasm.This is clearly indicates that the acid phosphatase is involved directly or indirectly in the synthetic processes going on in the yolk nucleus complex. The follicular epithelium shows increase in the acid phosphatase activity in the follicle till it attains 4-5mm diameter and then it decreases.

Key words : Ooplasm, Atretic follicles, Balbiani's vitelline body.

During the past few years much work has been done on the morphology,histochemistry and biochemistry of avian ovary Guraya (1976),Guraya and Chalana (1976),Chalana and Guraya (1979a) and Burron *et al.* (1999). However, very little information is available with regard to the changes in the hydrolytic enzymes during folliculagenesis and follicular degeneration. The enzymatic activity in granulosa cells is observed to increase with the growth of follicles. Acid phosphatase activity has been reported in the theca interna and granulosa layer of ovaries of human (McKay *et al.*, 1961; Deane *et al.*, 1962). Adams *et al.* (1966) have reported the presence of acid phosphatase as discrete cytoplasmic granules in all developing guina pig oocytes. According to them the developing oocyte is unknown but its presence could indicate that the hydrolytic enzymes is required for the utilization of some nutritional reserve.

The primordial oocytes in the common myna ovary are loosely arranged in groups or nests, and these are surrounded by flat granulosa cells whose number, shape and biochemical properties change with the initiation of growth, with the initiation of growth no. of nucleoli increases simultaneously the chromosomes attain lampbrush configuration. Crescent shaped Balbiani's vitelline body consist of ribonucleoprotein, phospholipids, hydrolytic enzymes. The amount of these substances increase with the oocyte growth. The enzyme activity of acid phosphates also increase in the Balbiani's vitelline body with the oocyte growth .The possible functional significance of these morphological and biochemical changes has been discussed in retation initiation of growth in oocytes.Chowdhury and Yohimura (2002) reported changes of lysosomal hydrolase activity in the anterior pituitary of hen during induced molting. The physiological and biochemical study in migratory and nonmigrator birds have been reported by Leonard and Visser (1986), Moore *et al.* (1982), Wingfiled *et al.* (1996) and Yamauchi *et al.* (1997).

The acid phosphatase activity in the corpora lutea has also a great variation depending on the state of development .The young corpora lutea are much more active than the older ones,a high activity is also present in the interstitium.

MATERIALS AND METHODS

The common myna (*A.tristis*) used in this investigation were captured from over wintering flocks near Ghaziabad, between December 2001 and February 2002. Captive birds were housed, up to four or six percage measuring 23×25×41 or 27×27×51cm, respectively.

The birds had acclimated to laboratory conditions, they were sexed laparotomy under general anesthesia; the ovaries were immediately taken out from the abdominal cavity. The related components were separated from the ovary for localization and estimation of acid phosphate.

Fresh tissue was used for sectioning. The material was fixed on the block holder and was placed in cryocut chamber till sectioning. The section of 8-14µ in thickness were cut at -20^{0}c, the sections were taken up directly on the slides and were allowed to dry at room temperature for 5-7minutes. Sections bearing slides were then placed