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ACTIVITY OF ALKALINE PHOSPHATASE ON OVARY IN COMMON MYNA (*Acridotheres tristis*)

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ABSTRACT

The alkaline phosphatase activity which is observed mainly in the peripheral side of ooplasm, granulosa and thecal layers of the growing follicles of common myna , appears to be much more as compared to the other enzyme activity, especially in large sized follicles. Follicular stages below 9.0mm dimensions, show weak to moderate enzyme activity in theca, granulosa and peripheral ooplasm but in later stages the enzyme activity is mainly restricted to zona radiata , peripheral ooplasm and theca externa . The quantitative analysis of alkaline phosphatase in atertic follicles has not shown a significancant increase as compared to their normal stages of growth .Thus, the enzyme which is required for the synthesis and transportation of material in the normal follicle , begin to digest the oocyte itself with the onset of atresia The alkaline phosphatase activity remain very prominent in the thecal glands of theca interna of the degenerating follicle of ovary in common myna.

Key words : Ooplasm, Thecal layer, Follicles, Alkaline phosphatase.

The alkaline phosphatase activity remain very prominent in theca interna of degenerating follicles (Verma and Guraya, 1968 and Verma, 1970) which have been considered to constitute the interstitial gland tissue of vertebrate ovary (Guraya 1971, 1973) . This is in agreement with the previous observation on the mammalian ovary (Mckay *et al*., 1961; Jacoby, 1962 and Craig, 1967) in the guinea pig and birds also , the thecal layer of atretic follicles hypertrophies to form an interstial mass, the alkaline phosphatase activity becomes more pronoused (Adams *et al* .,1966 and Guraya and Chalana 1975,76)

The primordial oocytes of ovary in the common myna 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 and numbers 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 acid phosphates activity 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) have been 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 andVisser (1986), Moore *et al.* (1982), Wingfield *et al.* (1996), Yamauchi *et al.* (1997) and Yasuo *et al.* (2005).

In guinea pig (Adams et al., 1966) a strong alkaline phosphatase activity occurs in the thecal layer ,but it is absent in the granulosa layer of developing follicles . In the human and several others mammalian species ,the thecal layer also shows intense alkaline phosphatase activity (Mckay *et al*., 1961; Taki *et al*.,1966). Most recently, Nakama (1969) has found that internal thecal cells in the follicles of the bovine ovary show the highest alkaline phosphatase activity granulosa cells in small follicles a slight and granulosa cells in the large follicles negative. Moss *et al.* (1954) have stated that in the primordial follicle of bovine ovary alkaline phosphatase is present in the granulosa cells and the enzymatic activity gradually disappears from this site and correspondingly it is increased in the internal thecal cells . Various workers (Kurat, 1958; Jacoby, 1962) have discussed the differences in the localization of alkaline phosphatase in the ovaries of different species of mammals

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,