

BIOCHEMICAL PROFILE OF FOLLICULAR FLUID IN SHEEP



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CERTIFICATE

This is to certify that the thesis entitled " **Biochemical profile of follicular fluid in sheep**" submitted in part fulfillment of the requirements for the degree of **MASTER OF VETERINARY SCIENCE in VETERINARY PHYSIOLOGY** to the Tamilnadu Veterinary and Animal Sciences University, Chennai is a record of bon^a fide research work carried out by **Thiru T. SATHEESH KUMAR**, under my supervision and guidance and that no part of this thesis has been submitted for the award of any other degree, diploma, fellowship or other similar titles or prizes and that the work has not been published in part or full in any scientific, popular journal or magazine.

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ABSTRACT

<i>Title</i>	:	BIOCHEMICAL PROFILE OF FOLLICULAR FLUID IN SHEEP
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The study was conducted on 1500 pairs of sheep ovaries. The four stages of oestrous cycle were identified based on the changes in the gross appearance of corpus luteum. The follicles located on the ovarian surface were classified into small, medium and large follicles based on their diameter. They were further classified as normal and atretic based transparent and opaque appearance of the follicular surface respectively. The pooled follicular fluid from each category of follicles were analysed for the concentration of total protein, albumin, protein fractions, cholesterol and hormones estradiol and progesterone.

Among the three sizes of follicles, highest total protein concentration was recorded in the small normal and atretic follicles of stage III and stage II of the oestrous cycle respectively. Higher concentration of protein was noticed in small normal follicle of stage III (day 9 to 13) of the oestrous cycle. The levels of protein concentration

between the small, medium and large size normal and atretic follicles showed significant variation ($P < 0.05$) irrespective of the stages of the cycle.

The highest albumin concentration was recorded in both small and medium size normal follicles of stage III. Significantly lower concentration ($P < 0.05$) was observed in the large size normal follicles of stage I and II of the cycle. Small size atretic follicles of stage II had the highest albumin concentration, whereas the large atretic follicles of stage II showed significantly lower albumin concentration.

The electrophoretic pattern of follicular fluid proteins, showed similar pattern with their respective stages except in the region of the specific 27 kDa protein which was present only in the follicular fluid of the pre-ovulatory follicles of stage I of the oestrous cycle.

The cholesterol concentration in medium size normal follicles was significantly higher ($P < 0.01$) than the other two groups of follicles in stage III of the cycle. Among the atretic follicles of different sizes, highest content was recorded in large size follicles of stage III the cycle.

The highest concentration of estradiol was recorded in large size normal follicles of stage IV of the oestrous cycle. Estradiol concentration indicated significantly higher ($P < 0.01$) difference between the sizes of the normal and atretic follicles during different stages of the oestrous cycle.

The highest progesterone concentration was recorded in medium size normal follicles of stage II of the cycle. Among the three sizes of follicles, medium size follicles of stage II had the significantly highest ($P < 0.01$) progesterone concentration. In all the three sizes of atretic follicles, progesterone concentration showed significant variation ($P < 0.05$) in during the four stages of oestrous cycle.