**Evaluation of Bovine Follicles in Relation to Breed, Age, Body Condition Score (BCS) and Ovarian Status**

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**ABSTRACT**

*In vitro* embryo production (IVEP) by using slaughterhouse ovaries is one of the popular techniques in modern animal reproduction to fasten the genetic improvement. Unfortunately, the major constraint on IVEP is the scarcity of quality cumulous-oocyte-complexes (COCs). Since ovarian follicles contain the COCs, thus this study aimed to evaluate the quantity of bovine follicles in relation to their breed, age, body condition score (BCS) and ovarian status. Information on breed, age, and BCS of the cows were recorded during the collection of ovaries from local slaughterhouses. The collected ovaries were then classified into two types, corpus luteum present (CL+) and corpus luteum absent (CL-), followed by further morphological evaluations on weight, length, width and number of visible follicles on the surface of the ovaries. It was found that 63.73% of the ovaries obtained were CL- type and 36.27% were CL+ type. Both ovarian types recorded to have almost similar number of surface visible follicles for CL+ and CL- types were 21.95 ± 2.48 and 22.46 ± 1.71 respectively. Crossbreed cows show significantly (P<0.05) larger ovaries and higher number of visible follicles (31.73±3.75) compared to Kedah-Kelantan and Local Indian Dairy breeds (18.54 ± 1.26 and 20.53 ± 2.93 respectively). Cows with age of 3 to less than 5 years group recorded to have larger ovaries and higher number of visible follicles (24.45 ± 1.70) compared to cows with age of less than 3 years group and 5 years and above group (17.00 ± 2.60 and 14.90 ± 3.33 respectively). Different BCS of cows also had varies number of visible ovarian follicles. Histological evaluation of ovaries had also been done comparing the ovaries with and without corpus luteum by using Hematoxylene and Eosin stain. Preantral follicles and total follicular number had been observed under microscope. CL- ovaries found to have significantly (P<0.05) higher number of primordial follicles with mean±SE of 93.43±2.88 compared to CL+ ovaries (76.44±1.60). Higher primary, secondary, and total number of follicles (69.40±3.66, 35.37±0.73, and 198.33±7.17, respectively) was recorded in CL- ovaries than in CL+ ovaries (61.26±6.22, 34.35±1.16, and 170.00±9.61, respectively). From these results, it is possible to conclude that factors such as breed and ovarian status had statistically significant influence on quantity of follicles, and age and BCS factors still shows comparative differences although not statistically significant. Those factors must be considered in suggesting the appropriate selection of ovaries for IVEP.

**Keywords**: bovine ovary, corpus luteum, follicles, histological study, morphological study.