



COMPARATIVE BIOMETRICAL AND FOLLICULAR STUDY IN PIG OVARY

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Abstract: Assisted reproduction techniques in farm animals are mostly based on an ovarian overstimulation that results in obtaining a large number of immature oocytes that must be matured in vitro if they are to be used later in the in vitro fertilization process. Porcine ovaries are a biological material frequently used in studies that analyze follicular development processes, oocyte maturation in close connection with the stages of the estrus cycle. Ovarian follicles and their degree of development represent the point of departure in obtaining good quality oocytes, capable of being used in in vitro fertilization processes. The present study aims to identify the possible correlations between some biometric parameters and the degree of development of the follicles in the ovaries of pigs harvested after slaughtering the animals. The study was carried out on a number of 36 ovaries from 2 slaughters that were carried out in different stages of the estrus cycle, grouped into two experimental groups. In the laboratory, 3 biometric parameters weight (g), length (mm) and width (mm) were determined, respectively they were identified, photographed, numerically quantified and analyzed to establish the type of ovarian follicle. Based on the determinations made, we can conclude that the number of follicles and their type is changed in the ovaries of the two experimental groups, these two parameters are closely related to the stage of the estrous cycle and do not cause significant changes in the biometric parameters studied - weight, length, width.

• Introduction

- ✓ Assisted reproduction techniques in farm animals are mostly based on an ovarian overstimulation that results in obtaining a large number of immature oocytes that must be matured in vitro if they are to be used later in the in vitro fertilization process.
- ✓ In the present study, the aim is to identify the possible differences between 3 biometric parameters: weight, length and width, respectively the stage of the estrus cycle in which the ovaries are located at sampling. Also, the type of follicles present in the ovaries is monitored depending on the period of the estrus cycle in which the animals were slaughtered.
- ✓ The aim of the work is to determine some biometric parameters at the level of pig oocytes and to identify the types of ovarian follicles, but also to identify possible correlations between the biometric parameters and the stage of follicular development.

• Material and method

- ✓ 36 sow ovaries were sampled and brought to the laboratory for the tests.
 - ✓ Batch A - 18 ovaries and
 - ✓ Batch B - 18 ovaries
- ✓ The ovaries were brought to the laboratory and subjected to biometric determinations for 3 parameters: weight (G), length (L) and width (I).
- ✓ Ovaries were weighed with an analytical balance.
- ✓ The ovaries were subjected to the examination and identification of ovarian follicles, the type of follicles and the presence of oocyte-cumulus complexes (COC). Microscopic examination and photography were carried out with an inverted microscope-Olympus CX41.

• Results and discussions

No	Weight (g)	Length (mm)	Width (mm)	Preantral follicles
1	7.88	28.14	22.88	3
2	10.09	39.36	26.05	5
3	12.33	39.02	26.1	7
4	6.32	20.11	15.25	4
5	9.45	38.77	26.15	6
6	9.35	37.89	25.97	5
7	9.51	30.56	26.35	6
8	11.91	34.98	28.12	4
9	6.4	30.23	23.34	3
10	16	44.5	28.85	9
11	12.92	38.94	28.68	7
12	12.78	30.56	27.88	8
13	12.86	28.68	28.62	8
14	12.6	25.24	19.4	5
15	11.96	28.46	26.68	7
16	13.54	36.23	24.86	8
17	14.49	37.19	21.55	8
18	6.19	20.32	15.56	3
Medie	10.92	32.73	24.57	5.88
DVST	2.91	6.86	4.20	1.96

Table 1. Biometric parameters, the number and type of follicles identified in the ovaries of group A

No	Weight (g)	Length (mm)	Width (mm)	COC	Phases estrus cycle (F/L)
1	9.5	29.83	20.71	1	L
2	8.14	34.24	20.38	0	L
3	9.79	25.84	20.17	7	F
4	12.93	26.64	18.61	15	F
5	14.23	45.29	31.9	7	L
6	12.32	24.1	17.62	22	F
7	8.83	31.21	20.62	25	F
8	7.13	24.51	20.31	18	F
9	12.62	25.93	20.51	12	F
10	14.77	41.73	33.11	12	L
11	12.03	36.88	20.84	3	L
12	16.6	43.41	37.17	4	L
13	15.51	43.67	22.69	1	L
14	10.82	39.07	28.4	8	L
15	10.12	37.49	30.98	12	L
16	10.39	33.03	34.97	2	L
17	9.2	32.33	27.43	6	L
18	10.95	32.4	20	5	L
Medie	11.43	33.75	24.80	8.88	-
DVST	2.63	6.944	6.32	7.36	-

Table 2. Biometric parameters, the number and type of follicles identified in the ovaries of group B

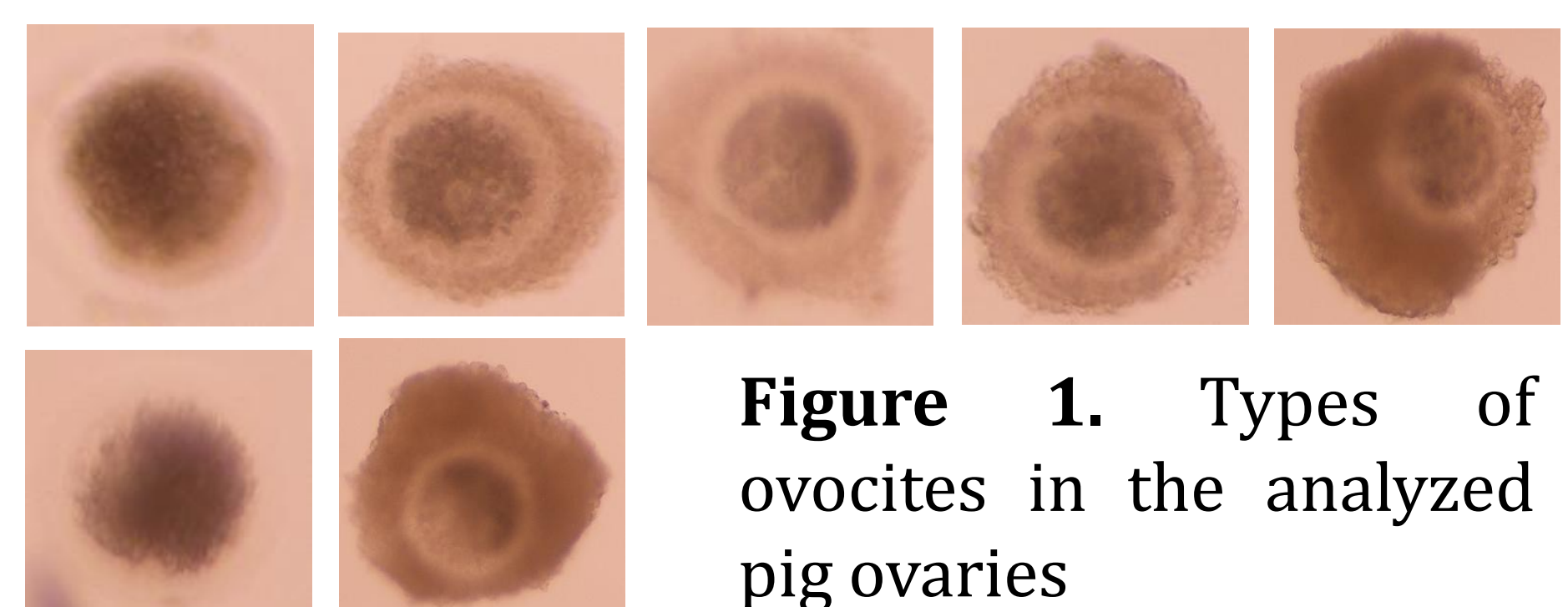


Figure 1. Types of oocytes in the analyzed pig ovaries

Conclusions

- ✓ The biometric parameters studied do not record statistically significant differences at the level of the ovaries from the two experimental groups, for the biometric parameters: weight, length, width. Ovarian follicles identified in the analyzed ovaries were preantral and antral with cumulus oocyte complexes.
- ✓ The type of ovarian follicles identified does not correlate with the determined biometric parameters. The type of ovarian follicle identified is closely related to the period of the estrous cycle, the pigs from the 2 experimental groups were slaughtered in different periods of the estrous cycle.