THE OOCYTE AND SPERMS CRYOPRESERVATION OF LOCAL SMALL RUMINANTS FOR CONSERVING GENETIC MATERIALS AND GERMS CELL BANKING REALIZATION

Dr. Gatot Ciptadi
Fac. Of Animal Husbandry,
Brawijaya University, Indonesia
ciptadi@ub.ac.id

www.bankselgamet.com

The 3th APIS
19-21 October 2016, Batu-Malang, Indonesia
INTRODUCTION

- Artificial Insemination (AI), IVM, IVF and Implementation (Goat-Sheep)
- There are still many types of livestock/animals have not been frozen (sperms and Oocyte)
- Potential alternative technologies sperm freezing and conservation of genetic materials for both research and commercial purposes.
- Goat Population East Java: 3.178.197 heads, Indonesia: 18.879.596 heads
Research program and Location:

Year I: Goat Senduro Lumajang - East Java

Year II: Sheep: DEG, Sapudi Island, East Java, Indonesia

The 3rd APIS
19-21 October 2016, Batu-Malang, Indonesia
The Goals of Research

Realizing a frozen cell bank (spermatozoa) goat-sheep for conservation and commercialization purposes of:

Utilization stock products frozen cell (−196 °C) for research and AI applications

**Important**: Feasibility study of the conservation of genetic material from a technical, economic and scientific aspect as well as to anticipation of the possibility of increasing development of international trade cells.
Methods

- Lab experiment method and Application Field, Producing frozen cell quality (genetic, viability, fertility, productivity, specific) Spermatozoa livestock / animals native, superior criteria, specific or rare. Products stored frozen cells -196 °C, straw 0:25 ml. Animals used previously have genetic screening (chromosomes and DNA) to guarantee the quality and free of defects.


The 3th APIS
19-21 October 2016, Batu-Malang, Indonesia
The 12 students in the field in collaboration with the Department of Livestock Lumajang, with the selection and measurement of vital statistics phenotypic characters, total of 900 individuals (including 249 males).

Students study to: freezing and testing the quality of sperm goats and Senduro with vitrification method.

Males were high selected (selected 1.0%).

Tim BBIB and UB: Measuring Vital statistics candidate male.
LABORATORY RESEARCH RESULT
Sperm quality  In vitro and Genetic Quality.

Selected goats: analyzed normal genetically (chromosomally normal) the quality of spermatozoa (fresh): motility more than 80% of fresh semen and more than 40% post-thawing motility (PTM) in accordance with ISO 2008.

Genetic analysis has been completed and indicates that the goat Senduro and PE is normal based on the analysis of chromosomes (2N = 60, X = acrosentris, Y = metasentris), a DNA analysis on the stages of DNA isolation followed by PCR for gene identification GH.
RESEARCH RESULTS

(1). Male Goats have been tested for genetic, spermatozoa quality, libido and test post-thawing motility (PTM and Implemented AI resulted in high lever result (86.67 % pregnancy rate)

(2). Research Genetic analysis of goats selected (chromosome and DNA analysis has been completed). Chromosome analysis showed the normal: number and structural

(3). Initial production of frozen semen and test quality goat (Senduro) already done, freezing still continue to be performed

(4). Goat sperms Ca++ intensity is different and varied between fresh and Freezing sperm.

The 3th APIS
19-21 October 2016, Batu-Malang, Indonesia
Figure 1. Different profile of Calcium intensity of local goat sperm:
(a). Fresh sperm
(b). Freezing sperms (post thawing) of local Indonesian Goat.
Analyses by Confocal Laser Scanning Microscope (CLSM: 400, Z.4, 3 D).
Conclusion

1. Goats and Sheep Oocyte and Sperm freezing (bank cells)
2. Sperm quality is considered (ISO 2008)
3. The local goat sperm frozen by non conventional could be used for the application of AI. However, this method needs to be enhanced using diluents and cryoprotectant more appropriate.

Suggestions
It was important to study the relationship between the relative intracellular calcium intensity both fresh and freezing semen with their fertility in vitro.

The 3th APIS
19-21 October 2016, Batu-Malang, Indonesia
Acknowledgements

1. Research Grant HIKOM, 2016, Kemenristek DIKTI.
2. BBIB Singosari Malang
3. Goat Breeders Assoc. Etawah Jaya , Lumajang
4. The District Livestock Service Office . Lumajang
5. All Goat Small Holder Farm/ Breeders Senduro districts .

6. Tanaka Hozumi,