

**SUPLEMENTASI FOLLICLE STIMULATING HORMONE  
PADA MEDIUM MATURASI IN VITRO UNTUK  
MENINGKATKAN MATURASIOOSIT DAN  
PERKEMBANGAN EMBRIO STADIUM  
4 SEL KAMBING BLIGON**

**INTISARI**

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Penelitian ini bertujuan untuk mengetahui pengaruh suplementasi *Follicle Stimulating Hormone* (FSH) dalam medium maturasi *in vitro* untuk maturasi dan perkembangan embrio stadium 4 sel kambing Bligon. Ovarium diambil dari rumah potong hewan (RPH), dibawa ke laboratorium dalam larutan NaCl fisiologis suhu 31 – 34°C. Oosit dikoleksi dari folikel berukuran 2 – 6 mm menggunakan *syringe* 3 mL dan jarum 23 G yang berisi *Dubelco's phosphat basa saline* (DPBS). Oosit dibedakan dalam tiga kelompok medium maturasi, yaitu *tissue culture medium* (TCM) dengan suplementasi FSH 0, 50, dan 100 IU/mL. Oosit dikultur pada suhu 39°C, kadar CO<sub>2</sub> 5%, kelembaban 95% selama 24 jam. Oosit *mature* difertilisasi dengan spermatozoa yang telah dikapasitasi. Proses fertilisasi dilakukan dalam inkubator CO<sub>2</sub> pada suhu 39°C, kadar CO<sub>2</sub> 5%, dan kelembaban 95% selama 5 jam. Oosit terfertilisasi dicuci dengan medium kultur (TCM-199) sebanyak 3 kali dan diinkubasi dalam kondisi yang sama untuk kultur embrio. Data suplementasi FSH pada medium maturasi *in vitro* dan perkembangan embrio dianalisis dengan Rancangan Acak Lengkap Pola Searah. Hasil penelitian menunjukkan persentase oosit *mature* untuk suplementasi FSH 0, 50, dan 100 IU/mL berturut-turut adalah 70,48±23,22, 78,48±15,80, dan 80,29±12,86%. Pada oosit *mature* tampak ekspansi sel kumulus yang merenggang dan mengelilingi oosit. Proses perkembangan embrio *in vitro* stadium 2 sel suplementasi FSH dosis 0, 50, dan 100 berturut-turut adalah 36,00±14,22, 44,00±33,94, dan 57,45±31,78%; sedangkan untuk embrio *in vitro* stadium 4 sel sebesar 27,33±22,04, 35,33±40,73, dan 39,45±20,38%. Embrio yang dihasilkan pada suplementasi FSH menunjukkan ukuran blastomer seragam, blastomer intak, warna blastomer terang, dan bentuk embrio bundar *spherical*. Dapat disimpulkan bahwa suplementasi FSH pada medium maturasi *in vitro* tidak meningkatkan persentase maturasi dan perkembangan embrio *in vitro*, namun meningkatkan kualitas maturasi dan kualitas embrio.

(Kata kunci: *Follicle Stimulating Hormone*, Oosit Kambing Bligon, Maturasi Oosit, Fertilisasi *In Vitro*, Perkembangan Embrio *In Vitro*)

**SUPPLEMENTATION OF FOLLICLE STIMULATING HORMONE INTO IN VITRO MATURATION MEDIUM TO INCREASE OOCYTES MATURATION AND 4 CELL STADIUM EMBRYO DEVELOPMENT OF BLIGON GOAT**

**ABSTRACT**

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The study was carried out to investigate the effect of follicle stimulating hormone (FSH) into *in vitro* maturation medium to increase oocytes maturation and 4 cell stadium embryo development of Bligon goat. Goat ovaries were obtained from a slaughterhouse and transported to the laboratory in a flask of NaCl at temperature 31 – 34°C. Oocytes were aspirated from 2 – 6 mm follicle using filled by *Dubelco's phosphat basa saline* (DPBS) into 3 mL syringe (23G needle). Oocytes were divided into three groups, i.e tissue culture medium (TCM) with FSH supplementation 0, 50, and 100 IU/mL. Oocyte were put into those medium and incubated on 39°C, 5% CO<sub>2</sub>, and 95% humidity for 24 hours. Matured oocytes were fertilized with capacitated frozen semen-thawed and incubated on 39°C, 5% CO<sub>2</sub>, and 95% humidity for 5 hours. After that fertilized oocytes were washed 3 times in TCM and incubated in the same condition for embryo culture. The data of FSH supplementation and embryo development were analyzed by Randomized Completely One Way Classification. The result showed the percentages of mature oocytes from FSH supplementation 0, 50, and 100 IU/mL were 70,48±23,22, 78,48±15,80, and 80,29±12,86%, respectively, expansion cumulus cells surrounding the oocytes indicated the matured oocytes. Cleavage rate of the two cells stage were 36,00±14,22, 44,00±33,94, and 57,45±31,78%, respectively, and for the 4 cells stage were 27,33±22,04, 35,33±40,73, dan 39,45±20,38%. Embryos obtained from the treatment, indicated uniform of blastomeres size, tight, compact, intact, and round-spherical shape. It could be concluded that supplementation of FSH in the maturation medium could not increase the percentages of maturation and embryo development *in vitro*, but it could increase quality of maturation and quality of embryo.

(Keywords: Follicle Stimulating Hormone, Bligon Goat Oocytes, Oocytes Maturation, *In Vitro* Fertilization, *In Vitro* Embryo Development)