

## KARAKTERISTIK ESTRUS DAN *FERNING* SALIVA INDUK KAMBING SAANEN YANG DIBERI SUPLEMENTASI PROTEIN PAKAN DALAM PROGRAM SINKRONISASI ESTRUS

### INTISARI

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Kambing Saanen merupakan bangsa kambing perah unggul yang memiliki potensi besar untuk dikembangkan di Indonesia, namun sering kali mengalami kendala *silent heat* yang berdampak pada efisiensi reproduksinya. Penelitian ini bertujuan mengkaji karakteristik estrus pada induk kambing Saanen dengan suplementasi protein dalam program sinkronisasi estrus. Sebanyak 15 ekor induk kambing Saanen dengan *body condition score* (BCS) 2,5-3 dibagi menjadi tiga kelompok berdasarkan tingkat suplementasi protein dari bungkil kedelai (*Glycine max*): T0 (tanpa suplementasi), T1 (suplementasi 5%), dan T2 (suplementasi 15%). Sinkronisasi estrus dilakukan menggunakan kombinasi implantasi CIDR selama 12 hari dan injeksi PGF2 $\alpha$  yang diberikan dua hari sebelum pelepasan CIDR. Ternak dipelihara di kandang Pusat Pengembangan Ternak (PPT) Fakultas Peternakan, Universitas Gadjah Mada. Seluruh sampel sudah dibuat seragam (BCS, pakan basal, lingkungan kandang) untuk meminimalisir faktor lingkungan dan eksternal. Parameter yang diamati meliputi respon visual estrus, sitologi vagina, *farning saliva*, pH vagina, temperatur vagina, profil hormon estrogen, kadar kolesterol, kadar *blood urea nitrogen* (BUN), kadar total protein, dan kadar natrium. Pengambilan sampel *farning saliva*, observasi tanda-tanda visual estrus (warna vulva, pembengkakan, dan mukus), serta pengambilan sampel darah dilakukan mulai hari pelepasan implan CIDR hingga tiga hari berikutnya. Data dianalisis menggunakan *multivariate* pola faktorial dilanjutkan dengan uji *Duncan multiple range test*. Hasil penelitian menunjukkan bahwa kelompok perlakuan T1 memiliki skoring warna vulva terbaik dibandingkan kelompok perlakuan T0 dan T2. Untuk skoring pembengkakan dan mukus, kelompok T1 dan T2 menunjukkan hasil yang lebih baik dibandingkan T0. Analisis kadar hormon estrogen menunjukkan bahwa kelompok T1 memiliki kadar estrogen tertinggi dibandingkan T0 dan T2. Hasil pengukuran pH dan temperatur vagina menunjukkan bahwa pada antar kelompok tidak menunjukkan perbedaan yang signifikan, namun berbeda signifikan pada hari pengambilan, hari ke-2 mempunyai nilai pH dan temperatur vagina tertinggi. Sementara itu, analisis biokimia darah menunjukkan kelompok T0 memiliki kadar rata-rata kadar kolesterol tertinggi, sedangkan kelompok perlakuan T2 memiliki kadar BUN dan total protein tertinggi. Analisis kadar kolesterol menunjukkan bahwa kelompok T0 memiliki kadar kolesterol tertinggi yang berdampak pada penurunan sekresi hormon estrogen. Berdasarkan hasil tersebut, dapat disimpulkan bahwa suplementasi 5% bungkil kedelai memberikan karakteristik estrus dan profil estrogen terbaik pada induk kambing Saanen dibandingkan kelompok perlakuan lainnya.

Kata kunci: Kambing Saanen, *Farning saliva*, Siklus estrus, Suplementasi, Sinkronisasi estrus

## ESTRUS CHARACTERISTICS AND FERNING SALIVA IN SAANEN DOES SUPPLEMENTED WITH FEED PROTEIN IN AN ESTRUS SYNCHRONIZATION PROGRAM

### ABSTRACT

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The Saanen goat is a superior dairy goat with great potential for development in Indonesia; however, it often faces challenges such as silent heat, which affects reproductive efficiency. This study aimed to evaluate the estrus characteristics of Saanen does supplemented with protein in an estrus synchronization program. Fifteen Saanen does with a body condition score (BCS) of 2.5-3 were divided into three groups based on protein supplementation levels using soybean meal (Glycine max): T0 (no supplementation), T1 (5% supplementation), and T2 (15% supplementation). Estrus synchronization was carried out using a combination of CIDR implantation for 12 days and a PGF2 $\alpha$  injection two days before CIDR removal. The goats were housed at the Pusat Pengembangan Ternak (PPT) of the Faculty of Animal Science, Universitas Gadjah Mada, with controlled environmental and dietary conditions to minimize external factors. The parameters observed included visual estrus response, vaginal cytology, ferning saliva, vaginal pH, vaginal temperature, estrogen hormone profile, cholesterol levels, blood urea nitrogen (BUN), total protein, and sodium levels. Sampling of ferning saliva, visual estrus observation (vulva color, swelling, and mucus), and blood collection were conducted from the day of CIDR removal until three days after. Data were analyzed using multivariate factorial analysis followed by duncan's multiple range test. The results showed that the T1 group had the best vulva color scoring compared to T0 and T2. In terms of swelling and mucus scores, T1 and T2 outperformed T0. Ferning saliva scoring did not show significant differences among groups. Estrogen hormone analysis indicated that T1 had the highest estrogen levels compared to T0 and T2. Vaginal pH and temperature analysis showed no significant differences among groups, although significant differences were observed across sampling days, with the second day showing the highest pH and temperature values. Blood biochemistry analysis revealed that the T0 group had the highest average cholesterol levels, while the T2 group showed the highest BUN and total protein levels. Elevated cholesterol levels in T0 were associated with reduced estrogen secretion. Based on the results, it can be concluded that protein supplementation influenced estrus characteristics and estrogen hormone profiles. Supplementation with 5% soybean meal provided the best estrus characteristics and estrogen profile in Saanen goat does compared to other treatment groups.

**Keywords:** Saanen goat, Ferning saliva, Estrus cycle, Supplementation, Estrus synchronization