

**PROFIL HORMON KORTISOL DAN BIOKIMIA DARAH PADA BANGSA SAPI LOKAL INDONESIA YANG MENGALAMI KEJADIAN KAWIN BERULANG**

**INTISARI**

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Penelitian ini bertujuan untuk mengetahui profil hormon kortisol dan biokimia darah pada sapi lokal Indonesia yang mengalami kejadian kawin berulang. Sapi yang digunakan dalam penelitian ini adalah 30 ekor dari 3 bangsa sapi yaitu sapi Bali di Pulau Bali, sapi Madura di Pulau Madura dan sapi PO di Yogyakarta. Setiap bangsa sapi dibagi menjadi 2 kelompok yang masing-masing terdiri dari 5 ekor fertil dan 5 ekor kawin berulang. Pengambilan sampel darah sebanyak 3 ml diambil dari *vena jugularis* kemudian dilanjutkan dengan analisis biokimia darah, analisis hormon kortisol, dan analisis proksimat. Variabel yang diamati antara lain profil hormon kortisol dan biokimia darah, yang meliputi fosfor, total protein, dan urea nitrogen darah. Pengukuran hormon dilakukan dengan metode ELISA menggunakan kit komersial hormon kortisol (DRG, Jerman), dan pengukuran biokimia darah dilakukan dengan metode spektrofotometer dengan *photometer Microlab 300*. Data yang diperoleh dianalisis dengan metode *two ways ANOVA*, dilanjutkan dengan *Duncan's New Multiple Range Test (DMRT)* jika hasil analisis menunjukkan pengaruh nyata. Hasil penelitian menunjukkan bahwa konsumsi bahan kering (BK), bahan organik (BO), serat kasar (SK), protein kasar (PK), lemak kasar (LK) dan *total digestible nutrient (TDN)* pada tiga bangsa sapi menunjukkan perbedaan nyata ( $P < 0,05$ ) dan tertinggi pada sapi PO dibandingkan sapi Bali dan Madura. Hasil penelitian menunjukkan bahwa konsumsi BK, BO, LK, SK, PK dan TDN pada sapi fertil dan yang mengalami kawin berulang tidak menunjukkan perbedaan yang nyata. Rerata profil hormon kortisol tertinggi pada sapi Bali yaitu  $62,48 \pm 32,77$  mg/dl diikuti oleh sapi PO, yaitu  $28,11 \pm 13,55$  mg/dl dan terendah pada sapi Madura, yaitu  $17,63 \pm 5,41$  mg/dl. Profil hormon kortisol tertinggi pada sapi yang mengalami kawin berulang bila dibandingkan sapi yang fertil ( $44,17 \pm 4,62$  vs  $27,97 \pm 4,62$  mg/dl). Hasil analisis biokimia darah menunjukkan bahwa fosfor darah dan total protein tertinggi pada sapi Madura ( $6,45 \pm 1,50$  dan  $8,08 \pm 0,44$  mg/dl), sedangkan urea nitrogen darah pada sapi Bali adalah  $42,54 \pm 16,61$  mg/dl. Fosfor darah dan total protein tertinggi ditemukan pada sapi yang fertil, yaitu  $5,99 \pm 0,39$  dan  $7,40 \pm 0,26$  mg/dl, sedangkan urea nitrogen darah tertinggi ditemukan pada sapi yang mengalami kawin berulang ( $33,31 \pm 3,23$  mg/dl). Dapat disimpulkan bahwa Konsumsi nutrisi pakan pada tiga bangsa sapi terendah pada sapi Bali, tetapi profil hormon kortisol dan urea nitrogen darah sangat tinggi bila dibandingkan sapi Madura dan PO. Konsumsi nutrisi sapi yang mengalami kawin berulang rendah, namun hormon kortisol dan urea nitrogen darah tinggi bila dibandingkan dengan sapi yang fertil.

Kata kunci: Hormon kortisol, biokimia darah, kawin berulang, Sapi Lokal

## ABSTRACT

### CORTISOL HORMONES AND BLOOD BIOCHEMICAL PROFILE OF REPEATED BREEDING INDONESIAN LOCAL CATTLES

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This study was conducted to determine cortisol hormone and blood biochemical profiles of Indonesian local cattles with repeated breeding. Thirty cattles of three breeds udes in this study were Bali cattle in Bali Island, Madura cattle in Madura Island and Ongole crossbreeds in Yogyakarta. Each breed of cattle consisted of 2 groups, each of which consisted of 5 fertile cows and 5 cows with repeat breeding. Approximately 3 ml blood samples were taken from jugular vein, and analyzed using a blood biochemical analysis, cortisol hormone analysis, and a feed proximate analysis. The variables observed were cortisol and blood biochemical profiles (phosphorus, total protein, and blood urea nitrogen). Cortisol hormone measurement was performed by ELISA using a commercial cortisol hormone kits (DRG, Germany), while a biochemical measurement was performed by a spectrophotometer method using a Microlab 300 photometer. The collected data were analyzed by a two-ways ANOVA, followed by Duncan's New Multiple Range Test (DMRT) if the results showed a significant effect. The statistical tests of dry matter intake, organic matter, crude fiber, crude protein crude fat and total digestible nutrient (TDN) in the three cattle breeds showed significant difference ( $P < 0.05$ ) and the highest was found in Ongole crossbreed compared to Madura and Bali cattle. Furthermore, statistical tests on dry matter intake, organic matter, crude fiber, crude protein, crude fat and total digestible nutrient in fertile cows and those with repeat breeding did not show a significant difference. The results show that the highest average of the cortisol hormone profile in Bali cattle was  $62.48 \pm 32.77$  mg/dl followed by Ongole Crosbreed  $28.11 \pm 13.55$  mg/dl and the lowest was in Madura cattle  $17.63 \pm 5.41$  mg/dl. The highest profile of cortisol hormone was found among cattles with repeated breeding compared to fertile cows ( $44.17 \pm 4.62$  vs.  $27.97 \pm 4.62$  mg/dl). The results of blood biochemical analysis showed that the highest blood phosphorus and total protein was found in Madura cattles ( $6.45 \pm 1.50$  and  $8.08 \pm 0.44$  mg/dl) while the highest profile of blood urea nitrogen was found in Bali cattles ( $42.54 \pm 16.61$  mg/dl). The highest blood phosphorus and total protein were found in fertile cows ( $5.99 \pm 0.39$  and  $7.40 \pm 0.26$  mg/dl), while the highest blood urea nitrogen was found in cattles with repeat breeding ( $33.31 \pm 3.23$  mg/dl). It can be concluded that nutrient consumption of feed on the three breeds of cattle is lowest in Bali cattle, but the profile of cortisol hormone and blood nitrogen urea was the highest if compared to Madura cattle and Ongole crossbreeds. The intake of nutrient in cattle with repeated breeding was low, but the cortisol hormones and blood urea nitrogen were the highest if compared to those of fertile cows

Keywords: Cortisol hormone, blood biochemistry, repeat breeding, local cattle