

**DETEKSI KEBUNTINGAN SECARA NONINVASIF PADA MONYET
HITAM SULAWESI (*Macaca nigra*): TEKNIK PRESERVASI,
EKSTRAKSI DAN VALIDASI BIOLOGIS METABOLIT PROGESTERON
DAN ESTROGEN PADA FESES**

(Non Invasive Assessment of Pregnancy in Crested Macaque (*Macaca nigra*):
A Technique of Preservation, Extraction and Biological Validation of
Progesterone and Estrogen in Feces)

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ABSTRAK

Tujuan penelitian ini adalah untuk mengembangkan teknik preservasi dan ekstraksi sampel feses untuk analisis hormon serta uji validasi biologis untuk menentukan metabolit progesteron dan estrogen pada *Macaca nigra*. Sampel feses dikoleksi dari dua kelompok *M. Nigra* yang hidup di Cagar Alam Tangkoko-Batuangus (1°30' to 1°34' N; 125°3' -125°15' E), Sulawesi Utara. Tiga teknik preservasi dan ekstraksi (*freeze drying, oven drying, dan field extraction*) dibandingkan untuk menentukan teknik preservasi dan ekstraksi terbaik. Selain itu, tiga *hormone assay* untuk analisis progesteron (*PdG, progesterone DH, pregnanolone Mostl*) dan estrogen (*E1C, E2, Etotal*) diuji untuk menentukan hormone assay yang paling tepat untuk mengukur metabolit progesteron dan estrogen pada *M. nigra*. Hasil penelitian menunjukkan bahwa teknik *freeze drying* merupakan teknik preservasi dan ekstraksi terbaik dibandingkan *oven drying* dan *field extraction*. Namun, hasil analisis statistik menunjukkan bahwa teknik *field extraction* tidak berbeda nyata ($p > 0,05$) dengan teknik *freeze drying*. *Pregnanolone Mostl* merupakan *hormone assay* yang paling tepat untuk mengukur metabolit progesteron, sedangkan estron (E1C) merupakan *hormone assay* yang paling tepat untuk mengukur metabolit estrogen.

Kata kunci: *Macaca nigra*, preservasi, ekstraksi, metabolit progesteron, metabolit estrogen.

ABSTRACT

This study was conducted to develop a technique of preservation, extraction, and biological validation of metabolites progesterone and estrogen in feces for hormone analysis through enzyme immunoassay. Fecal samples were collected from Two groups of crested macaques (Rambo I and Pantai Batu) living in Tangkoko-Batuangus Nature Reserve (1°30' to 1°34' N; 125°3' -125°15' E) in North Sulawesi. Three different techniques of preservation and extraction (*freeze drying, oven drying and field extraction*) were performed to evaluate the best technique of fecal samples preservation and extraction for hormone analysis. Moreover, Three different hormone assay of progesterone (*PdG, progesterone DH, pregnanolone Mostl*) and estrogen (*E1C, E2, Etotal*) were tested to evaluate the best and reliable assay for measuring metabolites progesterone and estrogen in *M. Nigra*. Our result shown that although *freeze drying* was the best

technique compared with the oven drying and field extraction. However, field extraction was not significant with freeze drying. Pregnanolone Mostl was the most reliable hormone assay for measuring progesterone metabolite, whereas Estrone (E1C) was the most reliable hormone assay for measuring estrogen metabolites.

Keywords: *Macaca nigra*, preservation, extraction, metabolite progesterone, metabolite estrogen.