

# 捲尾食蟻獸之糞便中性類固醇 濃度變化

張希賢\* 邱若君\* 李素蘭\* 陳玉燕\* 趙明杰\*  
楊健仁\* 陳寶忠\* 林仁壽\*\* 吳兩新\*\*

張希賢 邱若君 李素蘭 陳玉燕 趙明杰 楊健仁 陳寶忠 林仁壽 吳兩新 1994。捲尾食蟻獸之糞便中性類固醇濃度變化。動物園學報6:61-65。

**摘要：**本研究之目的在於利用酵素免疫分析法檢測台北市立動物園內一頭雌性捲尾食蟻獸糞便中孕酮(progesterone)及雌二醇(estradiol)含量，以評估其生殖生理狀態。試驗結果顯示，其動情週期約為35天，動情期與黃體期之糞孕酮平均濃度分別為 $511.8 \pm 156 \text{ ng/g}$ 與 $1636.3 \pm 256.6 \text{ ng/g}$ ，雌二醇之平均濃度則分別為 $792.1 \pm 392.8 \text{ ng/g}$ 及 $62.2 \pm 27.1 \text{ ng/g}$ ，而懷孕期約為163天，胚埋植後糞孕酮與雌二醇平均濃度分別為 $1773 \pm 414.8 \text{ ng/g}$ 與 $558.6 \pm 211.6 \text{ ng/g}$ 。配種後，糞孕酮由 $538.6 \pm 321.7 \text{ ng/g}$ 上升至 $1610.5 \pm 246.8 \text{ ng/g}$ ，雌二醇由 $55.2 \pm 24.9$ 上升至 $1034.9 \pm 453.1 \text{ ng/g}$ 。在未哺育仔獸的情況下，產後20天即可再發情配種。根據上述內泌素濃度變化推測在配種後其胚有延遲埋植9週的現象。

**關鍵字：**孕酮、雌二醇、延遲埋植

## 前言

食蟻獸(Antear)主要棲息於墨西哥到阿根廷北部和烏拉圭的熱帶稀樹草原和森林中，可分成晝行性、以一種曳步方式行走的大食蟻獸(*Myrmecophaga tridactyla*)，以及多在夜間活動、樹棲、尾能捲纏抓握的小食蟻獸(Tamandua)和兩趾食蟻獸(cyclopesdidactylus)。這些食蟻獸均沒有牙齒，而舌及下顎骨細長，與非洲及亞洲產的穿山甲有相似的特徵，以前認為牠們是同類，但事實上，牠們的腰椎之關節及頭骨完全相異，胎盤及子宮

的形狀構造亦不相同，因此，現在認為此種共通之特徵只是外表而已。

根據文獻記載(David, 1984)，小食蟻獸於秋天(三月~五月)配種，懷孕期約130~150天，而與食蟻獸同為食齒目(Order Edentata)之犛徐(Armadillo)在懷孕過程中有約14週的延遲埋植(Delayed implantation)時間。

本文是利用糞孕酮(Fecal progesterone)及糞雌二醇(Fecal estradiol)之酵素免疫分析法，對捲尾食蟻獸(*Tamandua tetradactyla*)進行生殖狀態之研究，同時據此進一步了解延遲埋植之生理機制。

\* 台北市立動物園

\*\* 國立台灣大學畜產學系

## PRELIMINARY RESULTS ON JECAL STEROID MEASUREMENT IN A COLLARED ANTEATER (*Tamandua tetradactyla*)

S. S. Chang\* J. C. Chiu\* S. L. Lee\* Y. Y. Chen\* M. C. Chao\*  
C. J. Yang\* P. C. Chen\* J. H. Lin\*\* and L. S. Wu\*\*

**ABSTRACT** : Up to now, the fecal steroid measurement has been proven to be a very useful tool for monitoring the reproduction of mammals and gradually accepted for wild animal research, recently. However, this preliminary report may be the first one for Collared Anteater (*Tamandua tetradactyla*) on this purpose. A mature female Collared Anteater with her male companion housed in Taipei Zoo was used and her stool was collected once per week from August, 1991 to February, 1993. During this experimental period, she experienced two gestations in which she got a baby from the first one but died by dystocia from the second one. She did not nurse her baby and the baby was dead 3 days after delivery. The Collected fecal samples were frozen at  $-20^{\circ}\text{C}$ . Following thawing, samples were extracted and analyzed for progesterone and estradiol by enzyme immunoassays.

Results mainly based on the fecal steroid data were listed as follows. There are  $35 \pm 2$  days for the estrous cycle (Mean  $\pm$  S. D., N=4 observations) with fecal progesterone concentrations around  $511.8 \pm 156 \text{ ng/g}$  and  $1636.3 \pm 392.8 \text{ ng/g}$  and fecal estradiol level concentrations around  $729.1 \pm 392.8 \text{ ng/g}$  and  $62.2 \pm 27.1 \text{ ng/g}$  for the follicular phase and the mid-luteal phase, respectively. The mean gestation period was 163 days (162 and 164 days for the two gestations, respectively). A delayed implantation may exist during the pregnancy because the fecal progesterone levels were kept at low values for about 9 weeks after mating. The estrus return after parturition indicated by a raise of fecal progesterone peak was 20 days since the doe did not nurse her baby. The above data indicated the validate fecal steroid endocrinal procedures for the Collared Anteater.

**KEY WORDS** : progesterone, estradiol, delayed implantation

---

\* Taipei Zoo, Taipei, Taiwan, R. O. C.

\*\* Department of Animal Science, National Taiwan University,