

## **ULTRASOUND MONITORING OF FEMALE REPRODUCTIVE CYCLE IN CAPTIVE ROYAL PYTHONS (*Python regius*): PRELIMINARY OBSERVATIONS**

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The Royal python is one of the reptile species most commonly bred in captivity. For a successful breeding an accurate monitoring of the reproductive activity is necessary. Ultrasonography has been widely used to evaluate reproduction in reptiles. Because of interspecies variability it is useful to investigate the characteristics of a single species. The aim of this study was to monitor the reproductive cycle of female Royal python by ultrasonography.

A total of 50 adult female were examined at one week intervals between January 2013 and January 2015. All the animals were captive born and fed a diet of commercially raised rats. Pythons were individually housed in racks maintained at temperature of 28°C under a 12:12 h L/D cycle. We performed brief scans on non-anaesthetized *P. Regius* using a portable ultrasound system and a 7.5-MHz linear array transducer (Esaote MyLab™ClassC®). A layer of conductive gel was applied to the snake's body and a series of ventral and lateral scans of the lower third of each individual body was carried out. Position, ultrasound features, dimension and echogenicity of the ovarian follicles were determined.

Follicles were located laterally on both sides of the body, but we noticed a better view on the right side for nearly all the females. Follicles in different stages of development, follicles undergoing regression and eggs in varying degrees of calcification were observed. On the basis of the ultrasonographic appearance and follicular size, we have divided the reproductive cycle in four phases: anovulatory phase (follicles less than 5 mm), transition (follicles from 5 to 10 mm), folliculogenesis (follicles from 10 to 30-35 mm) and embryogenesis (embryonic development until deposition). Ovulation occurs during folliculogenesis, thus identify the beginning of this phase is important to understand

when to introduce the male. We also evaluated the average duration of each phase, as well as the average value of follicular growth for each of these stages.

Ultrasound allows the visualization of follicles, embryonic structures and viability. With regard to snakes, there seems to be inter-species variability. The present study suggests that by ultrasound it is possible to precisely identify the different phases of the Royal python female reproductive cycle and thus to highlight the right time to introduce the male. It is also a useful technique to identify the females with follicular regression or producing slugs. In conclusion our study shows that ultrasound can be an excellent technique for accurate monitoring of the female reproductive activity in Royal python.

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