

## Stereological analysis of the elastic system fibers of Water buffalo

Pereira, VA.<sup>1</sup>, Ribeiro, ICA.<sup>1</sup>, Pereira, VA.<sup>1</sup>, Figueiredo, MA.<sup>2</sup>,  
Babinski, MA.<sup>1</sup> and Chagas, MA.<sup>1</sup>

<sup>1</sup>Universidade Federal Fluminense

<sup>2</sup>Universidade Federal Rural do Rio de Janeiro

The purpose of the present study was to verify the smooth muscle cell distribution and elastic system fibers volumetric density (Vv) in the corpus spongiosum and corpus cavernosum of the water buffalo penis. The penis of water buffalo and bovine, as well as in other species, has two functions: storage of semen in the female genital apparatus and expulsion of urine. The penis is composed of the body (cavernous pairs), the urethra with his cavernous body and tip of the penis and is covered, all of it, the albuginea tunic. Spiral deviation is restricted to the free end of the penis and the rest of the penis is not deviate. The penile function also depends on the elastic fiber system. In mammals, the classification of different penis types is based on erectile tissue or the penile connective tissue. In animals with a fibroelastic penis, the erection is essentially a result of length increasing, where the penis emerges from the prepuce due to sigmoid flexure straightening. Elastic and collagen fibers are important penile constituents and maintain the penile structure during erection, and allow adequate resistance during the return to the non-erect state. Penis of adult buffaloes of Mediterranean breed (n = 10) were obtained from the commercial abattoir. The penile mid shaft fragments were fixed with 4% phosphate buffered formalin solution and/or Bouin's liquid during 24-48 hours, and processed using standard histological techniques. The sections were stained with Weigert's Resorcin-Fuchsin with previous oxidation. The elastic system fibers was determined in 25 random fields of each fragment using M42 test system. Statistical analysis: The data were analyzed in the software Graphpad Instat (Graphpad) to verify the Gaussian distribution. To compare the quantitative data of corpus espongiosum and corpus cavernosum, the Student's t-test was used (p < 0.05 was considered significant). The water buffalo has a fibroelastic penis with a corkscrew shape that contains two erectile structures: the dorso-lateral corpus cavernosum and the ventral corpus spongiosum that surrounds the penile urethra. Both structures were covered by a dense connective tissue capsule-the tunica albuginea. The tunica albuginea projects intracavernosal pillars or septa, mainly in the corpus cavernosum. The elastic fibers Vv average was  $\pm 65.41\%$  for corpus spongiosum,  $51.12\%$  for corpus cavernosum and  $36.67\%$  for albuginea tunic. The great amount of elastic fibers and the smooth muscle cell distribution beneath the endothelium suggest that these fibers may have an important role in penile erection process in the penis of water buffalo. Morphological and quantitative data concerning water buffalo are still scarce, and there is need for more information, mainly because these animals are used as biological models and commercially as potential protein sources.