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THE MORPHOLOGY OF THE FUR OF SIBERIAN TIGER (*PANTHERA TIGRIS ALTAICA*)

Dmitry A. DERUNOV[1], Aleksandra R. TITOVA[2], Tatyana V. MOSKVINA[2], Irina P. KOROTKOVA[3], Irina V. GALKINA[2], Elena N. LUBCHENKO[4], Yury G. VOLKOV[2], Dmitry V. PANKRATOV[5], Pavel V. FOMENKO[1], Mikhail Yu. SHCHELKANOV[2,6]

[1] *Amur Branch of the World Wide Fund for Nature, Vladivostok, Russia*
[2] *Federal Scientific Center of East Asia Terrestrial Biodiversity, FEB RAS, Vladivostok, Russia*
[3] *Primorskaya State Academy of Agriculture, Ussuriisk, Russia*
[4] *Regional State Budget Institution "Veterinary Anti-Epizootic Service in Primorye Territory", Vladivostok, Russia*
[5] *Department for the protection, control and regulation of the use of wildlife objects of the Administration of Primorye Territory, Vladivostok, Russia*
[6] *Far Eastern Federal University, Vladivostok, Russia*

The Siberian tiger (*Panthera tigris altaica*) is the endangered species. The population estimated about 500 animals in the Russian Far East. The main reasons of population decreasing include poaching, hunting, habitat destruction. Fur and hairs are the most frequent materials using in criminal expertise, particularly for the evidence of poaching.

Both scanning electron microscopy and PCR analyses are the most sensitive methods for fur species identification. However, relate to high costs of these methods and common absence of specialists, it is necessary to develop more simple methods of fur identification suitable in the field conditions. The aim of this study is to investigate morphological structure of the fur of different species including Siberian tiger.

The morphological structures of Siberian tiger, domestic dog and cat fur from the different regions of the body including head, neck, shoulder-blade, back, abdomen, tail and foot were investigated using light microscope. The measurement of fur was provided using Axio Vision.

Four different parameters were measured such as fur width, hair shaft width, cuticle width, ratio hair core/hair width, cuticle width/hair width. Our results showed that fur of Siberian tiger had higher width of hair shaft, cuticle and fur width than other two species. Width of hair shaft was 130.1–244.1 nm, cuticle – 62.7–110.3 nm, fur width 314.3–463.9 nm. The higher width for all parameters (cuticle, shaft) was registered for fur taken from foot, the lowest width – for fur taken from back. The width of fur and its structures was significantly lower in cat and dog. In cat width of hair shaft was 19.1–65.9 nm, cuticle – 5.6–44.5 nm, fur width was 28.4–156.4 nm. The higher width for all parameters (cuticle, shaft) was registered for fur taken from abdomen the lowest width – for fur taken from head. In dog width of hair shaft was 46.4–95.7 nm, cuticle – 7.3–9.6 nm, fur width 63.0–112.2 nm. The higher width for all parameters (cuticle, shaft) was also registered

for fur taken from abdomen the lowest width – for fur taken from head. The ratio hair core width/cuticle width was also distinguished in all species. The higher ratio was recorded for Siberian tiger; it was 2.1±0.2 nm, for cat it was 1.7±0.3 nm, and in dog – 1.2±0.1 nm. The similar tend was also appeared for ratio cuticle width/hair core width. The higher ratio was recorded for Siberian tiger; it was 1.1±0.2 nm, for cat it was 0.7±0.4 nm, and in dog – 0.3±0.1 nm.

Thus, we conclude that the simplest fur measurement is quite sensitive method for identification of fur origin.

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