

TRICHO-TAXONOMY OF HAIR OF GREY WOLF *CANIS LUPUS* (LINNAEUS, 1758) [CANIDAE : CARNIVORA : MAMMALIA]

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(Accepted 9 November 2017)

ABSTRACT : The hair morphology of *Canis lupus* were examined using an optical light microscope to know its microscopic characteristics. The hair of *Canis lupus* is diagnosed by its unique medullary characteristics i.e. the composition of medulla- 'multicellular', structure of medulla- 'simple or narrow medulla lattice' and the 'circular or reniform' shape of cross-section. The photo-micrographs and characteristics of dorsal guard hairs are presented here may be used for the species identification.

Key words : *Canis lupus*, hair morphology, dorsal guard hair, microscopic characteristics.

INTRODUCTION

Trichotaxonomy i.e. study of hair characteristics of the mammal is one of the applications used for identification of species (Teerink, 1991; Chakraborty and De, 2010). The hair characteristics of different orders of class Mammalia have been well studied (De, 1993; Chakraborty and De, 2010; Bahuguna *et al*, 2010 etc.). However, the hair morphology of grey wolf *Canis lupus* (Linnaeus, 1758) is unknown except a study by Chakraborty and De (2010). Therefore, the present study was undertaken to provide a detailed microscopic characteristics of hairs of *Canis lupus* for its species identification.

The grey wolf is similar size of Asiatic wild dog, with large skull, long powerful jaws, arching brows and elevated forehead; its body colour on dorsal side is greyish fulvous, usually with a brownish tinge, but sometimes mixed with black; greyish face with a mixture of black and white hairs; under surface with soft dingy white hairs; ears are pointed and upstanding and back of ears are reddish buff; the tail is short, bushy and black-tipped; distributed in scattered population through peninsular India (Menon, 2014).

MATERIALS AND METHODS

The dorsal guard hair were collected from the mid-dorsal region of dry specimens of *Canis lupus* present in the National Zoological Collection, Mammal and Osteology Section of the Zoological Survey of India, Kolkata, India. The samples were washed thoroughly in carbon tetra chloride after by Chakraborty *et al* (1996) to remove the dirt of exogenous materials. Microscopic

characters such as scale position, scale pattern, scale margin and scale margin distance of dorsal guard hair were studied with help of the digital camera fitted on an optical light microscope (Olympus BX41). The medullary configuration and composition, structure and margins of the medulla and cross-section of dorsal guard hair were recorded and photographed. Nomenclature of different parameters was followed by Bruner and Coman (1974), Moore *et al* (1974), Teerink (1991) and Chakraborty *et al* (1996).

RESULTS AND DISCUSSION

The cuticular characteristics of dorsal guard hair of *Canis lupus* were observed as: scale position- 'transversal', scale patterns- 'irregular wave', the structure of scale margins- 'rippled' and the distance between scale margins- 'near'. The medullary characteristics of dorsal guard hair were as: composition of medulla- 'multicellular', the structure of medulla- 'simple or narrow medulla lattice' and form of the medulla margins- 'straight'. The cross-section of dorsal guard hair was observed as 'circular or reniform' shape (Table 1, Fig. 1).

The hair of *Canis lupus* can be identified with its unique medullary characteristics i.e. the composition of medulla- 'multicellular', structure of medulla- 'simple or narrow medulla lattice' and the 'circular or reniform' shape cross-section. There is no specific study on hair morphology of *Canis lupus* except a study Chakraborty and De (2010). But the present study provides a complete hair key of characteristics of dorsal guard hair of *Canis lupus* along with the high-resolution photo-micrographs

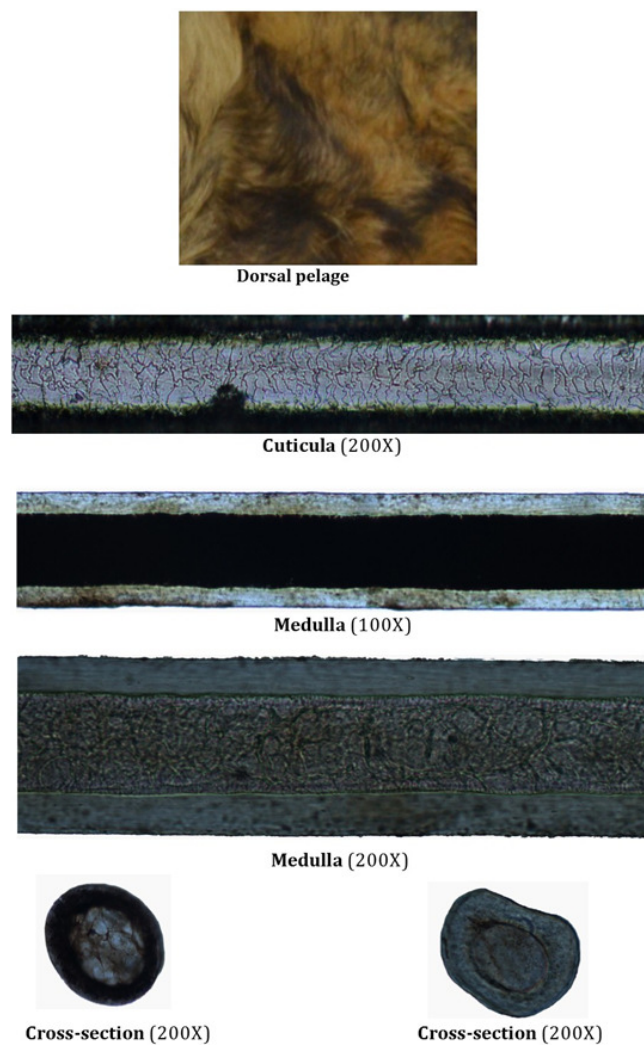


Fig. 1 : Photo-micrograph of dorsal guard hair characteristics of *Canis lupus*.

for species identification.

Findings of the dorsal guard hair characteristics of *Canis lupus* is summarised in Table 1.

ACKNOWLEDGEMENTS

The author would like to thank the Director, Zoological Survey of India, Kolkata for providing necessary facilities and encouragements.

Table 1 : Microscopic hair characteristics of *Canis lupus*.

a. Cuticular scale characteristics	
Scale position	Transversal
Scale patterns	Irregular wave
Structure of scale margins	Rippled
Distance between scale margins	Near
b. Medullary characteristics	
Composition of medulla	Multicellular
Structure of medulla	Simple / Narrow medulla lattice
Margins of medulla	Straight
c. Shape of cross-section	
	Circular / Reniform

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