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SCANNING ELECTRON MICROSCOPE STUDY OF SOME OF THE INDIAN PRIMATE HAIRS

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INTRODUCTION

Earlier workers have used only light microscopy for hair studies, but advent of SEM has made possible analysis of hairs for ultra-structural details. Mammal hairs have been examined under SEM by other workers (Hausman, 1920; 1924; Short, 1978; Riggott and Wyatt, 1980) abroad. In India, few studies are available on SEM of hairs of mammals. Kopikar and Sabnis (1976, 1977) have done some work on surface details of hairs of Indian mammals. Venkataraman *et al.* (1994) have also done scanning electron microscopic studies of 17 species of carnivorous mammals of India. On Indian non-human primates, De (1993) has mentioned SEM details of *Macaca fascicularis, Macaca assamensis* and *Macaca mulatta.*

Quite a few of the Indian non-human primates have been listed in Schedule I of Wild life Protection Act (1972) and Appendix I of CITES (Table 1). The present work, therefore, has a focus on SEM of some of the Indian primate hairs to study their ultra-structure.

METHODS

Dorsal guard hairs have been taken for analysis provided by the National Zoological Collection. The selected species have been shown in Table 1. Hairs were washed in alcohol and at a time a single hair strand was mounted on stub and gold coated in sputtering apparatus. The coated specimens were viewed in SEM Jeol Model JSM-5200 at 15 KV. Cuticular scale patterns and terminology described by Hausman(1920) have been followed here.

RESULTS

The outcome of the study has been shown in a tabular form in Table 1. The scanning electron microphotographs have been presented in Fig 1.

Table 1 : Details on the basis of SEM of hairs of some of the Indian non–human primates.

Species	**Family**	**Average hair shaft diameter µm**	**Scale shape**	**Average Proximo-Distal measurement of cuticular scale µm**
Loris tardigradus WPA-SchI(1) CITES-II	**Lorisidae**	24.97	**Imbricate elongate**	**23.99**
Macaca arctoides WPA-Sch II(1) CITES-II	**Cercopithecidae**	45.26	**Imbricate crenate**	**11.93**
Macaca mulatta WPA-Sch II(1) CITES-II	**Cercopithecidae**	48.13	**Imbricate crenate**	**10.64**
Macaca radiata WPA-Sch II(1) CITES-II	**Cercopithecidae**	43.98	**Imbricate crenate**	**10.66**
Trachypithecus phyraii WPA- Sch I(1) CITES-II	**Cercopithecidae**	48.79	**Imbricate crenate**	**12.49**
Trachypithecus johnii WPA-Sch I(1) CITES-II	**Cercopithecidae**	47.47	**Imbricate crenate**	**11.82**
Trachypithecus geei WPA-Sch I(1) CITES-I	**Cercopithecidae**	51.46	**Imbricate crenate**	**10.19**
Bunopithecus hoolock WPA-Sch I(1) CITES-I	**Hylobatidae**	46.16	**Imbricate crenate**	**12.82**

DISCUSSION

The outcome of present study has shown that the diameter of hair shaft ranged from 24.97 to 51.46 micron and cuticular scale shape was imbricate crenate except for *Loris tardigradus* where scale shape was imbricate elongate type and hair shaft diameter was 24.97 μm. Earlier studies on non-human primates found outside India have shown that in Proboscis monkey (*Nasalis larvatus*) and Spider monkey (*Ateles geoffroi*), the scales are also of imbricate crenate type while in Squirrel monkey (*Chrysothrix sciurea*), the scales are of imbricate flattened type (Hausman, 1920). In an earlier study on three Indian species of non-human primates (*Macaca fascicularis, Macaca assamensis* and *Macaca mulatta*), scales have been found to be of crenate type and were in the diameter range of 37.30-62.50 micron, 35.25-52.25 micron and 29.00-42.50 micron respectively (De, 1993). Short (1978) has stated that cuticular scales of hair are of limited taxonomic use. Combined with other features such as pigment distribution, medullary patterns, cross-sectional appearance etc., SEM may be of some utility in identifying some of the species.

SUMMARY

Hairs of eight Indian non-human primates belonging to three different families (Lorisidae, Cercopithecidae, Hylobatidae) from dorsal guard region were examined under SEM. The diameter ranged from 24.97 to 51.46 micron and scale shape was imbricate crenate except for *Loris tardigradus* where it was imbricate elongate type. Combined with other features such as pigment distribution, medullary patterns, cross-sectional appearance, SEM may be of some utility in identifying some of the species.

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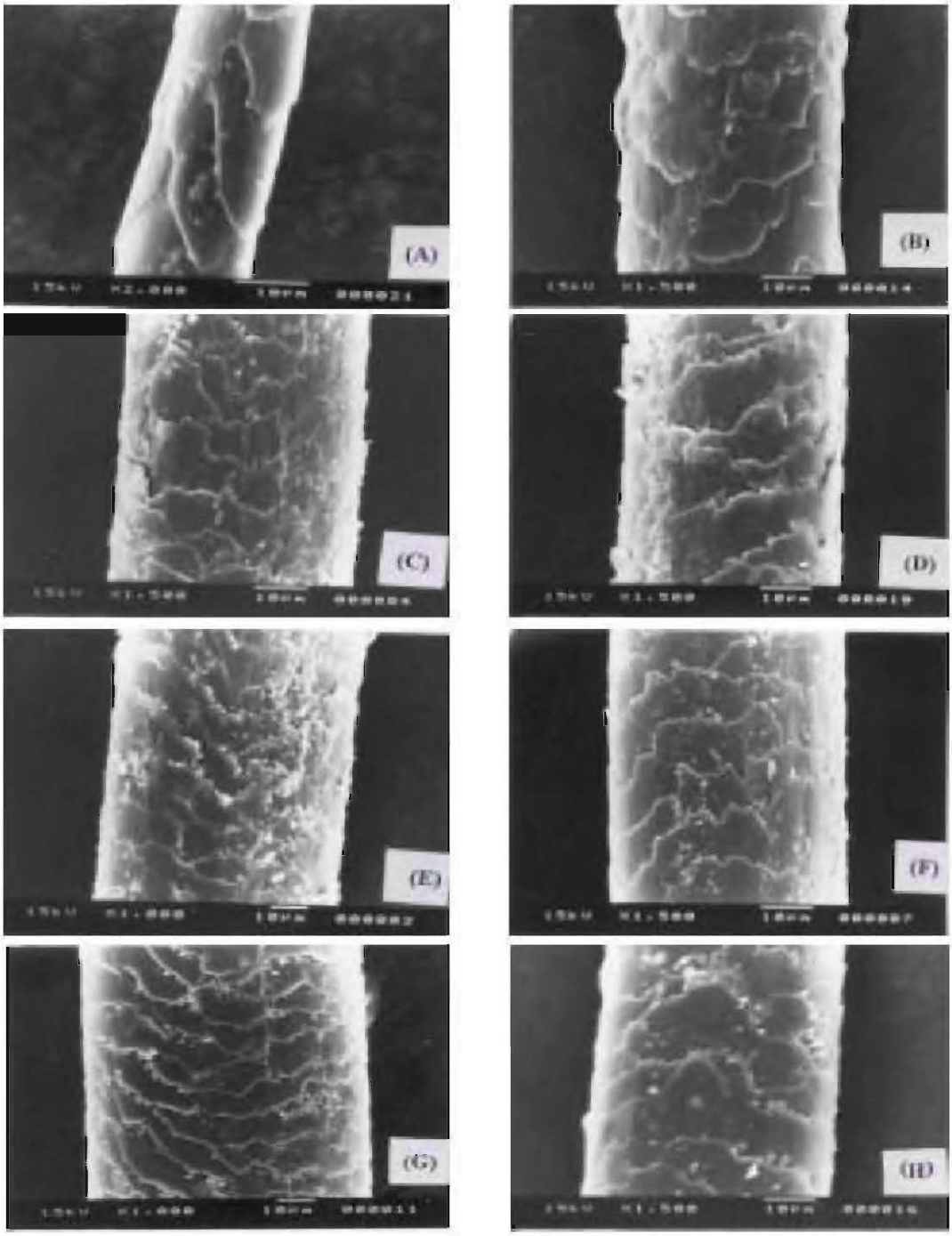

Fig. 1. Scanning electron microphotographs of some of the Indian non-human primate hair (A). *Loris tardigradus (2000x),* (B) *Macaca arctoides (1500x),* (C) *Macaca mulatta (1000x),* (D) *Macaca radiata (1500x),* (E) *Trachypithecus phyraii (1000x),* (F) *Trachypithecus johnii (1500x),* (G) *Trachypithecus geei (1000x),* (H) *Bunopithecus hoolook (1500x).*

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