

Leaf epidermal descriptors of forage from Caatinga, NE Brazil

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Keywords: Forage anatomy, microhistological technique, Brazil semiarid.

Introduction

In the Brazilian semi-arid region, the predominant vegetation is the Caatinga, which has a diversity of plant species, some endemic and presenting forage potential. The characterization of the plant anatomy is important for animal diet studies, using a microhistological technique (Scott and Dahl 1980) for estimating the diet botanical composition from ruminant faeces. This paper determined leaf epidermal descriptors for Caatinga species using microscopic slides.

Methods

A plant harvest was performed during the rainy season in 38 hectares of thinned Caatinga on the São Miguel Farm. This private property is located in Serra Talhada, Pernambuco, Brazil, at northern Pajeú, standing at 429 m altitude. The climate is considered as tropical semi-arid, with average rainfall of 432 mm/year and average temperature of 25.7°C. Serra Talhada-PE is located in the "Depressão Sertaneja" region, with relief predominantly gently undulating. Predominant soils are Luvisols, shallow and drained, with medium to high natural fertility (CPRM 2005). Paradermal cuts of leaf blades of the main species (forage or index) (Kraus and Arduim 1997) were performed and divided into groups: Poaceae (*Urochloa mosambicensis* Hackel., *Melinis repens* Willd., *Cenchrus ciliaris* L. and *Brachiaria plantaginea* (Link.) Hitch.); Malvaceae (*Herissantiacrispa* L., *Sida galheirensis* Ulbr., *Melochiatomentosa* L. and *Waltheriamacropoda* Turcz.); and other Dicotyledonous (*Cnidioscolus phyllacanthus* Muell., *Aspidosperma pyriformium* Mart., *Croton*

sonderianus Muell., *Bauhinia cheilantha* Steud., *Caesalpinia pyramidalis* Tul., *Mimosa tenuiflora* Benth. and *Macroptilium martii* Benth.).

Results

Generally, the descriptors used were: Poaceae exhibits parallel epidermal cells (EC) and stomata on dumbbells-shaped; Malvaceae (*H. crispa*, *S. galheirensis*, *M. tomentosa* and *W. macropoda*) had paracytic stomata, numerous medium trichome tectors (TT) at shape of smooth star at plume; and other Dicotyledonous species showed rib network uneven, reniform guard cells and quadrangular EC, except *M. martii* (EC puzzle) and *B. cheilantha* (EC rectangular-quadrangular). Individual results are in Table 1, and examples in Figure 1.

Conclusion

Leaf descriptors for the assessed species can be considered for the identification of plant fragments contained in ruminant faeces, in order to estimate the diet botanical composition using the micro-histological technique.

References

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Table 1. Species and descriptors.

Species	Description
<i>U. mosambicensis</i>	Four stomata/field/row; many micro-hairs and others TT on hooked; intercostal EC were short (mostly) and serrated
<i>C. ciliaris</i>	Five stomata/field/row, few micro hairs and others TT on hooked and stinger (mostly); intercostal EC was a little serrated and long
<i>M. repens</i>	Five stomata, few micro hairs and many TT on hooked; intercostal EC were short and smooth (mostly)
<i>M. martii</i>	Presence of paracytic stomata, TT with numerous and long with insertion on rosette-shaped well defined above spherical base
<i>A. pyriformium</i>	Presence of many anomocytic stomata and some paired; long TT, few numerous and insertion on rosette little defined without spherical base
<i>C. pyramidalis</i>	Presence of many paracytic stomata. long TT with insertion on rosette-shaped well defined without spherical base
<i>C. phyllacanthus</i>	Presence of many anomocytic stomata, short glandular trichomes, several single or paired papillae
<i>B. cheilantha</i>	Presence of many anomocytic stomata, short and long TT, with insertion on rosette-shaped well defined and spherical base.

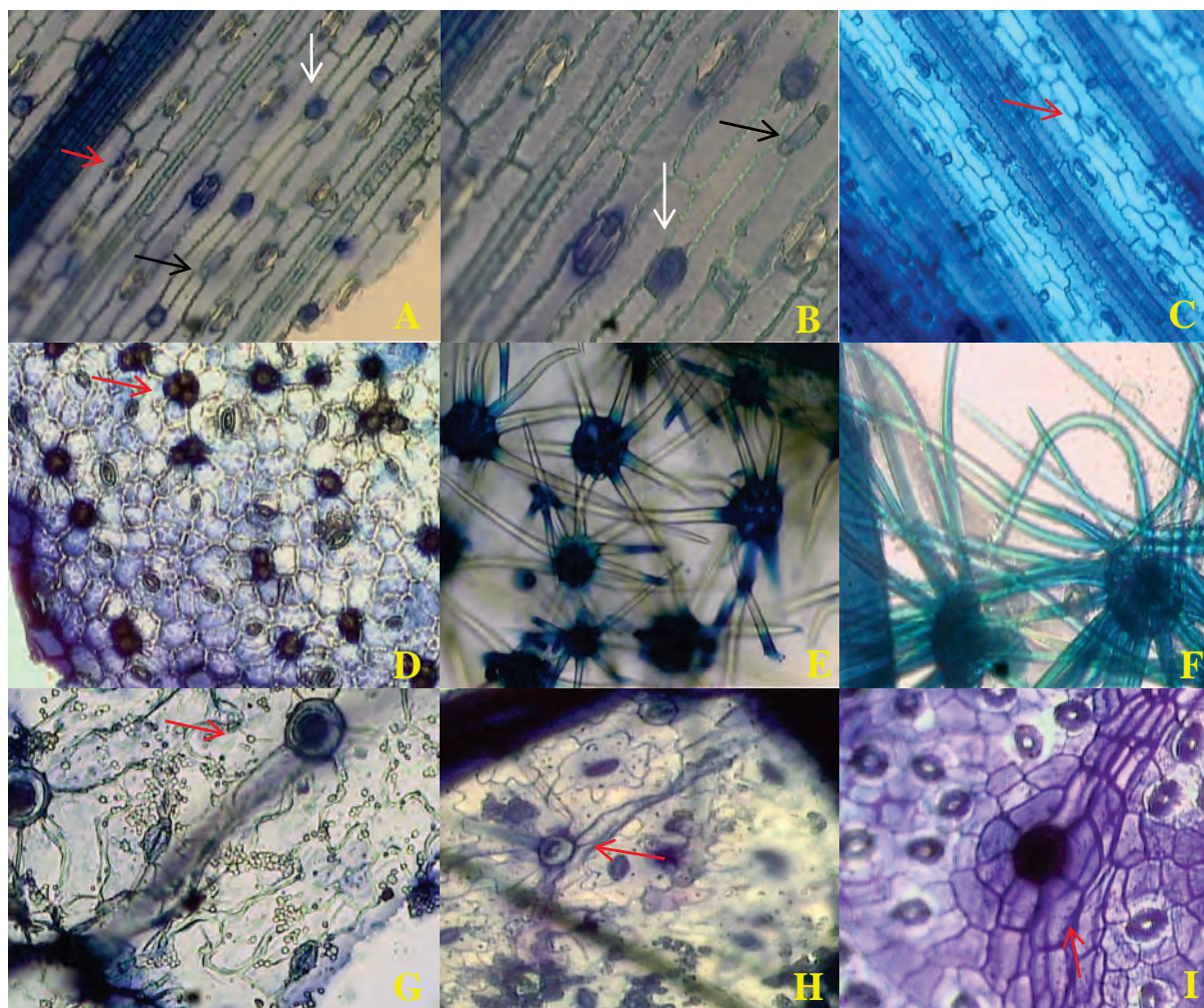


Figure 1. Leaf epidermal descriptors of plants from Caatinga at objective 10x, Serra Talhada-PE, Brazil. A – shape and arrangement of the stomata (red arrow), micro hair (black arrow) and hooked (white arrow) of *C. ciliaris*; B – insertion of micro hairs (black arrow) and hooked (white arrow) of *C. ciliaris*; C – micro hair of *U. mosambicensis* (arrow); D – presence of papillae on *C. phyllacanthus* (arrow); E and F – trichomes tectors at shape of smooth star at plume of Malvaceae; G and H – long trichomes tectors with insertion on rosette-shaped well defined above spherical base of *M. martii* (arrows); I – trichome tectors with insertion on rosette little defined without spherical base of *A. pyrifolium* (arrows).