Ann Zootech (1992) 41, 86

Key epidermal characteristics as an aid in determining the botanical composition of the diet of livestock grazing Sahelian ranges

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Selective grazing of native ranges by livestock has been estimated in Senegal by various techniques (Guerin *et al*, 1988). A promising method to estimate the botanical composition of the diet appears to be the microscopic epidermal analysis of fecal droppings or masticated forages with esophageal or rumen-fistulated animals. For this purpose, a collection of reference slides of epidermis has been compiled, described and photographed (Mandret, 1989) in order to file plant species and families.

Slides were prepared from herbarium specimens. Leaves and stems were boiled in water for 5 min then soaked in a mixture of alcohol and water (50–50) for 48 h, then boiled again in water for 15 min. Scraped epidermis was then soaked in domestic bleach mixed with a few drops of alcohol, then washed in Teepol and mounted in a mixture of water and glycerine (50–50).

Specific epidermal characteristics of pasture species vary depending on the part of the plant examined but can be described, photographed, compiled in a reference catalogue and used to establish a key for future botanical identification of fecal droppings and masticated forages as shown in table I for 2 stomatal types. The main difficulty is fibre identification of masticated tropical forages.

Guerin H *et al* (1988) *Rev Elev Méd Vét Pays Trop* 419-440

Guerin H, Friot D, Mbaye N, Richard D, Dieng A (1988) *Rev Trop* 41, 419-440

Mandret G (1989) *Rev Elev Méd Vét Pays Trop* 42, 237-243

Table I. Example of 4 keyed-out legume species grazed in Sahelian ranges.

Stomata	*Family*	*Crystals*	*Trichomes*		*Species*
		Sand shaped with few remote big prisms	Glands: pluriseriate basal cell with a finger-shaped apex. Prickly unicellular macro hairs with pluricellular attachment		*Zornia glochidiata*
Anisocytic	Fabaceae				
		Rod-like, lining up along main rib	Netting needle-like and prickly macro hairs	Unequal parts beside point of attachment	*Indigophera aspera*
				Equal parts beside point of attachment	*Indigophera diphyla*
Diacytic	Acanthaceae	None	Very short to very long prickly unicellular macro hairs with unicellular attachment. Glands with a very short basal cell and a rounded apex		*Blepharis linariifolia*