L. corniculatus L. AND *L. tenuis* Waldst. et Kit (LEGUMINOSAE) ANATOMY OF THE LEAF

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Introduction

"Broadleaf birdsfoot trefoil" and "narrowleaf birdsfoot trefoil" are the most important species (cultivated and naturalized) in Argentina.

Our purpose was to study anatomical features of *L. corniculatus* and *L. tenuis* leaves. These characters would be used in plant pathology and ecological research.

Materials and Methods

Leaves from plants growing in pots were used. Our acknowledge to M. M. Mujica, Area de Genética, Facultad de Ciencias Agr. y For., U.N.L.P., who provided the *L. tenuis* material.

For epidermis in surface view studies, each central leaflet from fresh leaves was attached to glass-slide with double adhesive tape; fine forceps were used to remove the epidermis (peeling technique); it was mounted in glycerin 90%.

Epidermal characters on leaflets adaxial and abaxial surfaces were examined using a Leitz light microscope. Measurements of stomatal size were obtained using a Nikon light microscope equipped with a micrometer.

For SEM studies, FAA-fixed leaves were dehydrated in absolute alcohol, placed between glass-slides and silica gel-dried, then, central leaflets were mounted on stubs with double adhesive tape and sputter-coated with gold-palladium. Observations on both surfaces were made at 15Kv with a Jeol JSM-T100 scanning electron microscope.

Observations of the leaf structures were made on the basis of microtome sections using fixed material in FAA. For microtoming, fixed material was dehydrated through an alcoholic series. Transverse sections were cut at 10-15 µm thickness with a rotary microtome, following standard paraffin methods. Sections were stained with cresyl-violet 1% (metachromatic), then mounted on glass-slides with balsam.

Results

L. corniculatus and *L. tenuis* showed epidermal cells with undulate walls and different sizes in surface view; they are elliptic in cross-section; sunken and elliptical stomatas with wide and raised outer stomatal ledge (rim), aperture long and narrow, were found; they are distributed in a random manner and surrounded by 3 or 4 epidermal cells which form a triangular or trapezoidal space over them.

Mesophyll consists the cells irregular in shape and separated from one another by an extensive system of intercellular air-spaces; these cells constitute the spongy chlorenchyma. Tannins and some crystalifer cells were found.

In *L. corniculatus* only few simple, long and thin trichomes were found on the leaflets, but another shorter may be found on the rachis and peciolules.

Table 1. Stomata size (μm)and stomata number per unit of area of leaflet surface (mm^{-2})

	stomata size (μm)				stomata number (mm^{-2})	
	adaxial		abaxial		adaxial	abaxial
	L	W	L	W		
L. corniculatus	24	20	25	20	143	100
L. tenuis	22	20	24	20	209	157

L = long
W = wide

Conclusions

Both *Lotus* species present amphistomatic and homogeneous leaflets with sunken stomatas; they are predominantly on the adaxial surface. *L. tenuis* showed stomatas shorter than *L. corniculatus*, but the stomata number per unit of area of leaflet surface was greater.

Observations

L. tenuis showed epidermis with external cells walls more convex than *L. corniculatus*, and after treatment for SEM, this differences continued.

Removal of epidermal layer in *L. tenuis* was easier than *L. corniculatus*.

Epidermal cells showed undulate walls in different grades on both leaflet surfaces.

Some leaflets from *L. corniculatus* showed mesophyll with palisade and spongy tissue becoming distinguishable from one another.

Note : the data reported are the basis to continuous our research using plants growing under different conditions.

Literature

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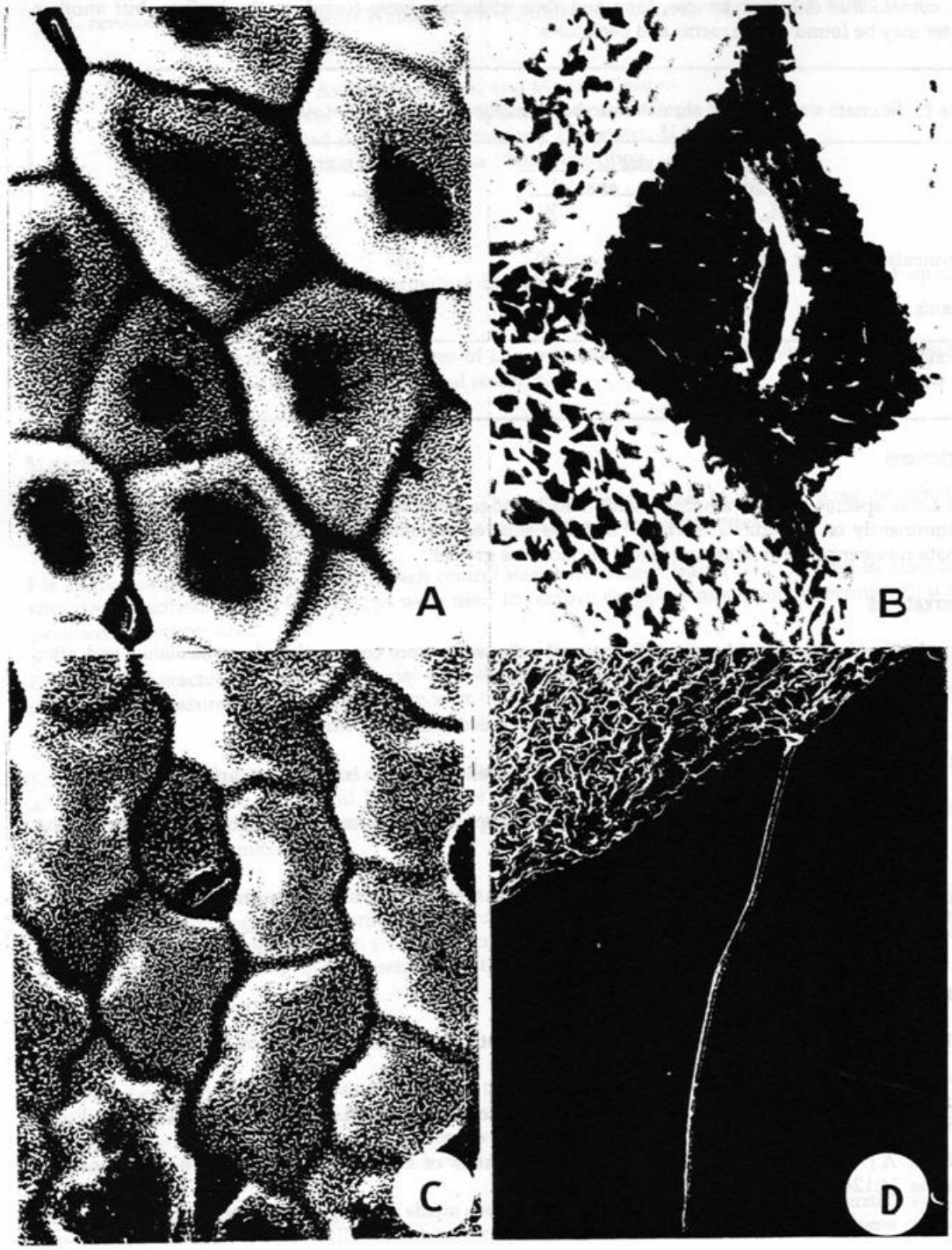

Figures A-D: A-C, *L.tenuis:* A, epidermis, abaxial surface; B, stomata; C, epidermis, adaxial surface. Scale = 100 μm.
D, *L.corniculatus:* trichome. Scale = 1.000 μm.