

***SCHINUS MARCHANDI* Barkley (ANACARDIACEAE):  
ANATOMY OF THE FRUIT**

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**Abstract**

This paper covers the treatment of the fruit of *Schinus marchandii* Barkley. This species grows in Santa Cruz, Río Negro and Neuquén provinces (Patagonia region, south of Argentina). Fruit characteristics were surveyed by means of stereoscopic and light microscopies, and by scanning electron microscopy. Presented are: description, illustrations, and photomicrographs of fruit anatomical characters.

**Introduction**

The Anacardiaceae family contains 68 genera and ca. 600 species. The size range from shrubs to tall trees. The family is widespread, mostly tropical and subtropical. The following genera are found in Argentina: *Lithraea* Miers ex Hook. & Arn., *Astronium* Jacq., *Loxopterygium* Hook. f., *Schinus* L. and *Schinopsis* Engl. The genus *Schinus* includes approximately 30 species. Eighteen of them are found in Argentinian territory, six reaching the Patagonian region. *Schinus marchandii* grows in Santa Cruz, Río Negro and Neuquén Provinces. It is a shrub up to 3 m tall; glabrous, spinescent; leaves alternate, simple, oblong to ovate, and coriaceous, shining, and dark purple, mesocarp fleshy and resinous adhering to a stony endocarp. Seed with thin endosperm (Barkley 1994, Hunziker 1984).

The purpose of this study is to define the fruit anatomical characters.

**2. Material and methods**

Fruits were collected from living plants during field work. The morphological characters were examined with a Wild M8 stereoscopic microscope. Before being sectioned, the fruits were softened in water by boiling during 10 to 15 minutes. For quick examination freehand pericarp transections were stained with 80 per cent ethanol safranin and mounted in 90 per cent aqueous glycerine solution. Permanent slides were made with fruits embedded in paraffin and sectioned on the rotary microtome. Sections cut at 15 µm thickness were stained with safranin-fast green, and then mounted in Canada Balsam. Sections were studied with a light microscope Leitz SM lux equipped with a camera lucida. Pericarp tissues were examined by means of a Phillips 505-Edax (Edax-SEM) scanning electron microscope following standard methods (D'Ambrogio de Argueso 1986, Pujiula 1928, Roth 1977).

### 3. Results

#### 3.1. Exocarp

Thick cuticle. Multilayered outer epidermis shows equidimensional stone cells followed by parenchymatous tissue.

#### 3.2. Mesocarp

Parenchymatous tissue with vascular bundles among the secretory cavities. The conspicuous cavities are lisigenous. This is supposed because the cavities are not surrounded by epithelium cells.

#### 3.3. Endocarp

A crystalliferous layer is present in mesocarp and endocarp. These prismatic crystals show dimensions between 10-25  $\mu\text{m}$ , and 5-15  $\mu\text{m}$ . Crystals were determined as calcium oxalate by Edax-SEM. On the inside there are three palisade layers of sclerenchymatous tissue: brachysclereids, small cells with thick walls, more or less 36  $\mu\text{m}$ ; macrosclereids or columnar cells with lumen, similar to Malpighian cells, about 20  $\mu\text{m}$  in height, and macrosclereids without lumen, reaching a length of 192  $\mu\text{m}$ .

### 4. References

- Barkley F.A., 1994. A study of *Schinus* L. *Brittonia* 5: 160-198
- D'Ambrogio de Argüeso A., 1986. Manual de técnicas en histología vegetal. Hemisferio Sur, Buenos Aires, pp. 79.
- Hunziker A.T., 1984. Los géneros de Fanerógamas de Argentina. *Nol. Soc. Argent. Bot.* 23(1-4): 19-20.
- Múlgura de Romero M.E., 1988. Anacardiáceas. In: *Flora Patagónica* (M.N. Correa, dir.), Argentina, Colec. Cientif. INTA 8(5): 98-102.
- Pujiula J., 1928. *Citología* 2da. edición. Tipografía Católica Casals, Barcelona, pp. 291.
- Roth I., 1977. Fruits of Angiosperms. *Encyclopedia of plant anatomy*. Gebrüder Borntraeger, Berlin, 344-358.

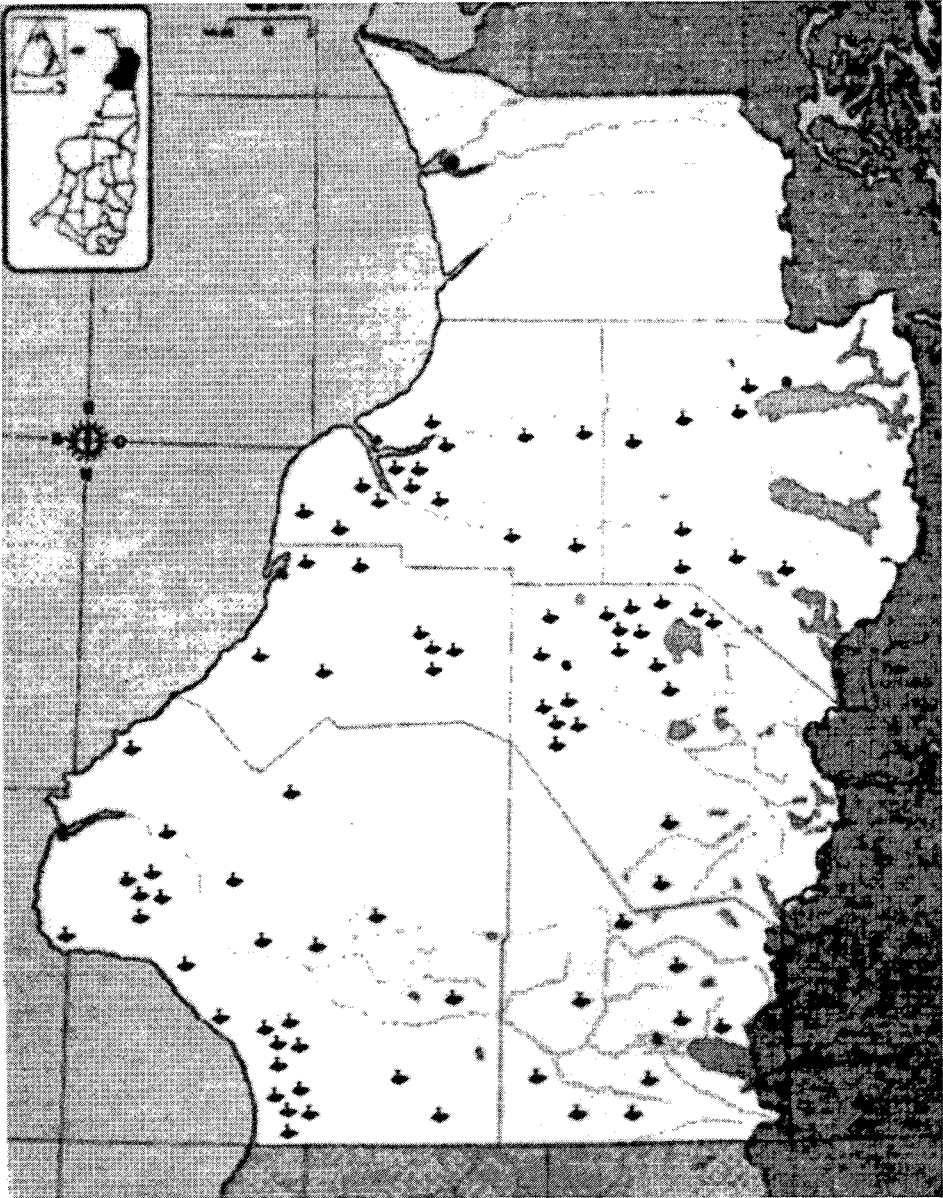


Figure 1

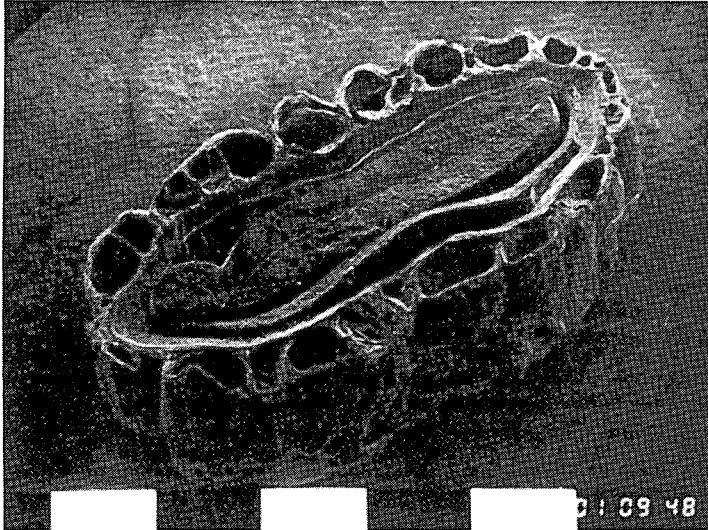
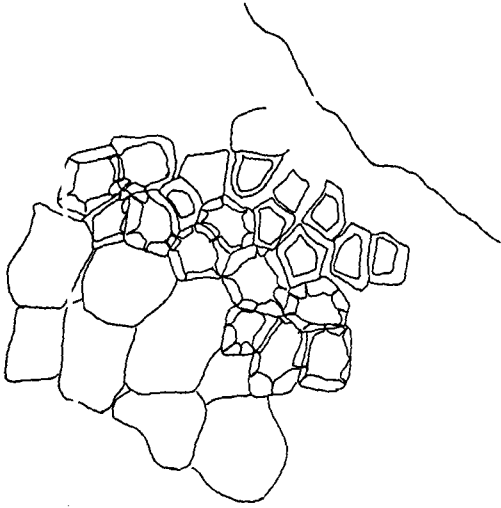
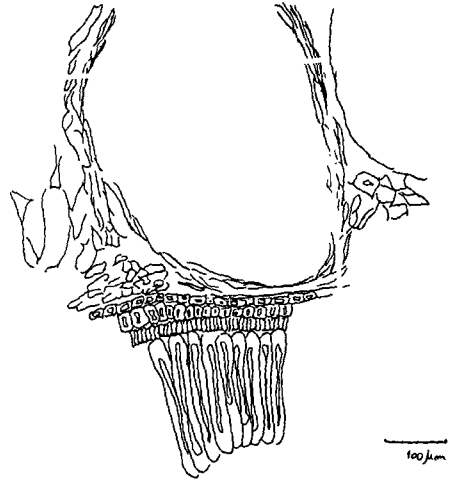


Figure 2



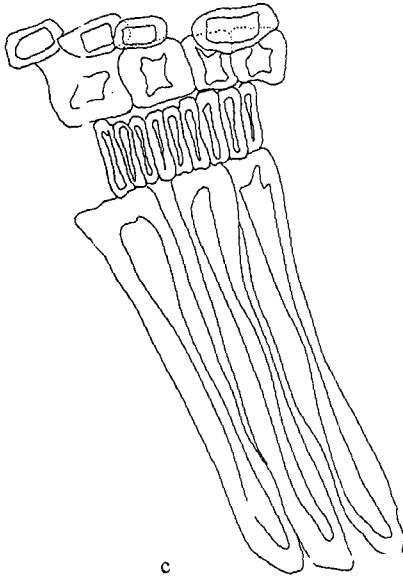
a

50 μm.



b

100 μm



c

50 μm

Figure 3