The anatomic study of the *Ginkgo biloba* L. leaf

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**Abstract**

This paper presents the anatomical study of the *Ginkgo biloba* L. leaf, species which is part of the *Ginkgoaceae* family. Transversal section has been made through the leaf limb and petiol identifying the adaxial and abaxial epidermis, the average thickness of the limb, the mesophile, the average length of the epidermical cells.

Key words: Ginkgo biloba, anatomic study

**Introduction**

Paradoxal under this name „*Ginkgo biloba‖* we find the age dean of plants on Terra, which detain numerous records and singularities. This has been signalized between fossils in a fantastic past, between two and three hundred million years in the secondary era.

Also as a record, we must mention the fact that *Ginkgo* has been entered into a therapy over 4700 years being mentioned as „the Chinese ancestor of the medicine treatments‖ Chen Nong pents’ao.

**Material and methods**

We have collected portions of healthy vegetative organs, and preserved in an mixture of absolute ethilic alcohol, glycerine and distilled water equal parts.

In order to study the anatomy of these organs, we have made transversal section through certain area and analyzed with a MC-3 microscope. The measurements of some structural elements have been made with the ocular micrometer at the same microscope. The pictures of the samples have been taken using a Nikon microscope. For the analysis of some microscopical elements we have made 100 measurements.

In this paper we have used the following terms:

- $VM =$ maximum individual value
- $Vm =$ minimum individual value
- $\bar{X} =$ the arithmetic media of the invidual values
- $\mu m =$ micrometer

**Results and discussion**

The leaf has a fan shape and present dichotomic nervation (Picture 1).

In transversal section the foliar limb has an average thickness of 256,5$\mu$m and it is homogenous type (Picture 2).

The superior epidermidis is made from a single layer of cells easily elongated in the tangential way, with an average thickness of 22,5 $\mu$m and present on exterior a cuticula of 2,35 $\mu$m.
The mesophile is homogenous type and made from spheric and oval cells, disorderly disposed, presenting some secretary channels. The inferior epidermidis is also made from a single layer of cells almost isodiametrical, with an average thickness of 31.5 µm, presenting on the exterior a cuticula of 3.83 µm.

**Picture 1 Ginkgo biloba L. leaves orig.**
Taken by: Stan Ion, Simeanu Cătălin George, 2008.

In tangential section made through the foliar limb we have analyzed the adaxial and abaxial epidermidis. The adaxial epidermidis is made of elongated cells with lateral walls very sinuous (Picture 3).
The epidermis cells have an average length of 85,1 µm and an average width of 34,2 µm. Stomata and trichomes cannot be observed on the superior part of the limb. The abaxial epidermis is made of cells with easily sinuous cells, disorderly disposed (Picture 4). The cells of the epidermis have an average length of 66,15 µm and an average width of 27,45 µm. Among the epidermis cells there are stomata gymnospermycal type with an average length of 47,1 µm and an average density of 108,28 stomate/mm².

The tricomes are missing on the inferior face of the Ginkgo biloba leaf.
The leaf petiol is elongated, and in transversal section has a semi-moon shape with the superior part slightly concave and the inferior one convex (Picture 5). In the mediane area the petiol has an average thickness of 1134 µm.

The superior is made of a single layer of cells almost isodiametric, with an average thickness of 20,25 µm presenting a cutícula of 2,25 µm on the exterior.

![Picture 5 Transversal section through the leaf petiol of Ginkgo biloba L. orig.](image)

Taken by: Stan Ion, Simeanu Cătălin George, 2008.

The external bark is made of 2-3 layers of sclerenkimatik cells, and the internal one of large parenchimatic cells with spaces among them.

The central area of the petiole there are 2 vessel fascicle, opened colateral type separated one from another through a parenchimatic tissue.

The wooden vessels are disposed in radial rows, and the liberian are rectangular also disposed in radial rows.

The inferior epidermis has the same dimensions and structure as the superior one.

**Conclusions**

The foliar limb of the *Ginkgo biloba* L. is thick 256,5 µm and homogenous;

The superior epidermis is single-stratified with an average thickness of 31,5 µm and present a cutícula of 3,83 µm on the exterior;

The mesophile is homogenous and it is made of spherical and oval cells;

The petiol has a semi-moon shape and a thickness in the mediane area of 1134 µm;

In the central area there are 2 vessel fascicle of opened colateral type.
References
Pelt J.M. (2002). Le Ginkgo biloba, Beaufour, Monografie de l’Institut