ADDITIONAL PROCESSING METHOD
OF THE VEGETABLE SAMPLES WITH HIGH-LIGNIFIED CONTENT

Cadar Mirela-Emilia

University of Agricultural Sciences and Veterinary Medicine, Faculty of Animal Science and Biotechnologies, 3-5 Manastur Street, 400372 Cluj-Napoca, Romania
email: mirucadar@yahoo.com

Key words: vegetable samples, high lignified content, histological processing

SUMMARY

The usual classical processing methods of samples from vegetable tissues with high-lignified content (sclerenchyma) do not permit to obtain thin sections necessary for the microscopic study. H.S. Williamson published in 1921 a work paper [cited by 4], in which was mentioned simultaneous inclusion and softening with cellulose acetate of the vegetable lignified organs. Only in 2000 this information was cited again in “Methods in Plants Histology” [4].

The study was done on dry wood samples, modeled in prism shape, collected from some forest species: oak tree (*Quercus robur*), nut tree (*Juglans regia*), beech tree (*Fagus sylvatica*), ash tree (*Fraxinus excelsior*) and linden tree (*Tilia sp.*). For comparison, was used the technique with hydrofluoric acid recommended by Beryn G.P. and Miksche J.P. [1,3]. To soften by cellulose acetate method the samples were placed in distilled water and maintained in vacuum conditions to eliminate the air from wood tissues. After that, the samples were put in pure acetone for two hours and passed into 12% solution of cellulose acetate in pure acetone. The softening duration was of two weeks for the samples of linden and ash trees and three weeks for the samples of oak, beech and nut trees. After softening, the samples were directly placed for division into sections (15-20 μm thickness) with a microtome for celloidin [E. Leitz Wetzlar–W. Koch Optik A.G. Zürich]. To remove the softening solution, the sections were placed in pure acetone for 2 minutes and were hydrated with ethylic alcohol (two baths of 96° and 70°) and distilled water. The staining was done with Crystal (Gentiana) Violet-Iodine method and the mounting was done in aqueous medium (glycerin and gelatin).

In both proceedings, the softening duration is determined by the proportion of fibrous content from the secondary wood (tracheas, woody fibers etc.) that can vary between 7% and 39% [2]. As duration, the softening with cellulose acetate requires longer one, but do not produced alterations of the fine structural details, and being also an inclusion medium permits to obtain thinner sections without tissue structure dislocation.

BIBLIOGRAPHY
3. Filipovici J., 1964, Studiul lemnului, E.D.P., Bucuresti
4. Internet: www.publicbookshelf.com; Methods in Plants Histology, 2000, LoveToKnowCorp.