

HERBARIUM COLLECTIONS AND GENETIC RESOURCE DOCUMENTATION AT
 THE AGRONOMY INSTITUTE CLUJ-NAPOCA

Abstract:

SEABO T.A., 1983 Herbarium collections and genetic resource documentation at the Agronomy Institute Cluj-Napoca. Not.bot.hort. agrobot., Cluj., XIII., 67-70. The importance of voucher specimens in genetic resource documentation is briefly discussed and the scientific herbarium of the Agronomy Institute Cluj-Napoca is presented. The first centuria of this Herbarium was edited in 1880, the main collectors and organizers were B.PÁTER, I. PRODAN, Al. BUIA and A. NYÁRÁDY. The development of the herbarium was connected with the foundation of the first independent Experiment Station of Medicinal Plants (1904) and the organisation of the Seed Testing Station in Cluj (1884). In the first period of its existence the herbarium served for floristic research and for the preservation of voucher specimens cultivated on experimental fields; the second period was a truly floristic one, the third was characterized by floristics and weed research. The present period—started in the early 70th—was influenced by genetic conservation strategies. The main Herbarium collection contains at present 27,175 registered specimens, and about 11,100 unregistered sheets.

Key words: History of botany, herbaria, genetic resources.

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Voucher specimens, preserved in herbarium collections, are important not only in classical taxonomy, but also in the fulfillment of the needs of modern genetic resource conservation and documentation. According to J.G. HAWKES 1980 plant specimens preserved in documentary collections are important in crop genetic resource research for the

following main reasons: 1. they facilitate the correct identification (verification) and can be used for further taxonomic work; 2. serve as an useful recording feature for a particular seed accession, especially where is much variation within the sample; 3. allow checking after regeneration of the sample in experimental fields in order to identify phenetic variability; prevent admixture and further errors.

In the long term preservation of voucher specimens, well organized standard herbaria are of utmost importance; old collections gained a considerable new role in economic botany.

In the Herbarium of the Agronomy Institute Cluj the first fully preserved centuria was edited in 1880 (GÁSPÁR, 1880). The main Herbarium developed slowly at the Botany Department of the Agronomy Institute, merged later with the Herbarium of the Seed Testing Station Cluj founded in 1884 and the herbarium of the first autonomous Pharmacobotanical Experiment Station founded in 1904. About 2 % of the specimens registered in our Herbarium till 1975 were collected by PÁTER and his staff and represents mostly vouchers of species and varieties cultivated on the experimental field. Some of the centuria edited by PÁTER (1889, 1910) with higher plants of economic importance (Cyperaceae, Juncaceae, Poaceae, medicinal plants etc.) are also preserved in the Herbarium.

There exists the valuable collection of Swiss Grasses, edited by STEBLER and SCHRÖTER in 1890 (vol.: I, III, IV).

The following period of development of the Scientific Herbarium (a truly floristic one) - was determined and characterized by the prodigious activity of Professor Iuliu PRODAN (1875-1959), a highly influential person in Romanian botany (RESMERITA, PUIA and BARTHA 1975). The contribution of PRODAN to the development of the Herbarium was presented in a paper signed by PUIA and POPESCU (1975).

After the retirement of PRODAN the organization and further widening of the collections was continued by prof. Al. BUIA, a pupil and collaborator of PRODAN. BUIA, who later organized the botanical garden and collections of the University of Craiova, contributed substantially to the development of the Herbarium, (labelling and collections). About 7 % of the specimens registered till 1975 were collected by BUIA and his collaborators (SZABÓ, 1983).

The present organization of the Herbarium was outlined and carried out under the guidance of late prof. A. NYÁRÁDY (1920-1982). Plants collected by the NYÁRÁDY's represented in 1975 as much as 40 % of the registered specimens.

The identification, labelling and registration of the collections was continued by D. PÁZMÁNY between 1954-1967 and by A.T. SZABÓ (1967-till now). Between 1967-1975 the identification work was practically completed, the insertion of identified collections fulfilled and a hand-printed catalogue comprising 21,000 registered herbarium specimens (excluding duplicates) compiled. As a result of this work, the Herbarium has become a well organized collection, easy to handle and study. Between 1975-1982 other 6082 herbarium sheets were registered and about 11,000 specimens, including Thallophyta, ancient and new collections, Herbarium I. MOLDOVAN, the duplicates of the Herbarium Mycologicum D. PÁZMÁNY etc. are prepared for registration.

Beside the specimens of great scientific value for the study of chorology and variability, there are preserved, in the Scientific Herbarium of the Institute, a number of holotypes and lectotypes described in different volumes of the Notulae botanicae horti agrobotanici, Cluj-Napoca, Buletinul științific (Lucrări științifice) of the Agronomy Institute Cluj-Napoca; Revue Roumaine de Biologie; Flora Republicii Socialiste România etc. (PUIA and POPESCU 1975).

In the last period, the Herbarium was enriched in the special direction of genetic conservation, that is, with voucher specimens of different land races mostly endangered by genetic erosion. This development was initiated originally by the publication of the ethnobotanical dictionary of Al. BORZA (1968) absolutely independently from the genetic resource conservation trends. The Ethnobotanical Dictionary of prof. Al. BORZA represented the starting point of our ethnobotanical studies performed in Transylvania. Experience gained in the herbarium of the Agronomy Institute served as a basis for the organization of the first Ethnobotanical Herbarium (Herbarium Ethnobotanicum Domus Agronomorum Arcus) preserved now at the Museum of Covasna District. Samples collected during the extensive and intensive studies, or regenerated on the experimental fields of the Agrobotanical Garden comprise mostly specimens of Agropyron, Humulus, Lupinus, Medicago, Phaseolus, Trifolium, Triticum and Vicia.

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Ph.D.THESIS

Braşila MIREANU, 1982.

Cercetări asupra culturilor de țesături de SOLANUM LACINIATUM Ait. și a biosintezei unor isoprenoide în aceste condiții (Researches regarding tissue cultures of Solanum laciniatum Ait. and the biosynthesis of some isoprenoids in "in vitro" conditions).
 Tipografia Agronomia Cluj-Napoca.

Guidance: Prof.dr.doc.gt.Cornel BODRA, Correspondent Member of
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Solanum laciniatum Ait. is a medicinal plant recently introduced in field culture in Romania, and in the experimental fields of the Agronomy Institute Cluj-Napoca, respectively. This species originated from the spontaneous flora of Australia and New Zealand, reached a world-wide interest, due to its secondary metabolites - especially glycoalkaloids - highly important in pharmacological industry in the production of steroid hormone.

There have been established conditions necessary for a rapid inducement of callus from leaf, shoots and root explants of Solanum laciniatum Ait. and also for active proliferation of the callus tissue grown on the medium solidified with agar. The Solanum laciniatum tissue cultures have presented similar morphological characters, regardless of origin, age and nature of the used culture medium. These calluses, macroscopically built from a homogeneous parenchymatic mass, have proved non-homogeneous from anatomical point of view. Within the mass of calluses there appear signs of the process of differentiation.

The steroid compounds and the carotenoid pigments in the tissue cultures of Solanum laciniatum have been investigated too.

TLC-analysis reveals that tissue cultures of Solanum laciniatum derived from leaf, shoot and root are able to synthesize steroid compounds and carotenoid pigments.

Independent of the origin and of the age of calluses, and also of the auxin in the medium, the spot-spectrum is the same. The same steroid compounds spectrum was found in soilgrown plants too. 7 to 9

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