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The botanical work of Ildefonso Zubía (1819-1891) in northern Spain

Abstract

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Ildefonso Zubía Icazuriaga (1819-1891) was a pharmacist, naturalist, and Secondary School teacher in Logroño (La Rioja, Spain). He was also a professor of Natural History at the University of Oviedo (Spain) and a corresponding member of several scientific associations. His scientific work dealt with a variety of research fields, especially Botany. His herbarium consisted of 4,300 samples of algae, fungi, lichens, bryophytes and vascular plants collected in the northern Spanish provinces of La Rioja, Vizcaya, Huesca, Burgos and Asturias. His herbarium was published 30 years after his death. In this work, both the most recent advances in Zubía's botanical research and his scientific relationships with European botanists, are presented.

Introduction

The 19th century was particularly difficult for science in Spain, because of civil wars, political changes and lack of resources. However, the creation of the Institutes of Secondary School in many Spanish provinces since 1835, and also the introduction of Natural History as a subject in those Institutes, allowed the development of a bulk of naturalistic studies by the Secondary School teachers. In 1844 Ildefonso Zubía (1819-1891) began to teach in the Institute of Secondary School of Logroño founded in 1843. The opening of his pharmacy dates back to about the same period. He also investigated different scientific fields, particularly botany. In this work, the most recent advances in Zubía's botanical research are presented. Our aim is to recover the figure of this important contributor to the knowledge of the flora in northern Spain. Biographical data on Zubía can be found in Ollero de la Torre (1990) and Jiménez Martínez (1997).

Zubía's botanical research

Zubía was a paradigm of the many-sided scientist of the 19th century, because of both

his naturalistic propensity and his diverse academic training (he took a degree in Pharmacy and Chemistry in Madrid in 1844, and in Natural Sciences in the University of Zaragoza in 1854). Most of his works were intimately related to local scientific problems. Roldán Guerrero (1976) summarized Zubía's research and/or technical works, which dealt with Physics (the translation of a French work on polarized light), Chemistry (the analytical characterization of mineral waters from La Rioja), Palaeontology and Anthropology (excavations in Quaternary caves of the province), Meteorology (he carried out the first systematic observations in Logroño), Medicine (reports on the epidemic cholera that affected Logroño in 1855), Agronomy (reports on treatments against the grapevine mildew), Enology (reports on wine adulteration) and Food Science (reports on olive oil adulteration with cotton oil). Nevertheless, his most outstanding investigations are those related to Botany.

His Herbarium contained around 4,300 samples, 3,600 of which were vascular plants and the rest algae, fungi, lichens, and bryophytes (Zubía Icazuriaga 1921). After his death, the Herbarium was parcelled out, in accordance with his will, among the Institute of Secondary School of Logroño, the Real Jardín Botánico of Madrid and the Pharmacist College of Madrid (Martínez Abaigar & al. 1991). This right decision was of crucial importance for the future knowledge of his collections amongst botanists. Nowadays, the first and second parts are kept in the same institutions (Instituto de Educación Secundaria "Sagasta" and Herbarium MA, respectively), whereas the third part is probably deposited in MAF (Farmacia, Universidad Complutense of Madrid). The part in Logroño contains 2,225 samples, including 135 cryptogams, corresponding to around 1,500 species (Martínez Abaigar & al. 1991). The two remaining parts are not fully catalogued.

The revision of his botanical material is important to understand the changes experienced by the flora of La Rioja during the last hundred years, since Zubía's herbarium is the most voluminous historical botanical material from that region. For instance, Martínez Abaigar & Núñez Olivera (1996) confirmed the disappearance or range restriction of several bryophytes, especially the hydrophilous ones, as a consequence of habitat alterations. A reappraisal of the samples collected by Zubía was proposed after the publication of *Flora de La Rioja* (Caballero 1932), because of the scarcity of his means. These suspicions were confirmed by the already achieved revisions of bryophytes (Martínez Abaigar & Núñez Olivera 1996) and lichens (Etayo 1996), since most of the samples had to be renamed. However, the overall revision of vascular plants is still undone.

Zubía's Herbarium was published in 1921, preceded by an ecological description of the province of la Rioja, formerly named Logroño (Zubía Icazuriaga 1921, reprinted in 1983). Such delay publication was partly due to the late sending of the manuscript (1907) from José María Zubía, the only grandson of Ildefonso, to the Real Sociedad Española de Historia Natural, and partly to some reticence of that scientific society (Gredilla 1907, Gredilla 1909). Finally, the zeal of J. M. Zubía and the collaboration of Ismael del Pan made possible publication of the book on private funds. Other botanists, contemporary with Zubía and scientifically far from the "official botany", published their works at their expenses too.

Plants recorded in Zubía (1921) came mainly from La Rioja (Northern Spain), but also a significant number of samples were collected from two spa localities (Urberuaga in Vizcaya, and Panticosa in the Pyrenees) where he spent some stays. Some scattered samples, instead, came from the provinces of Asturias (he occupied a post of professor of Natural History at the University of Oviedo during some weeks in 1847) and Burgos. A floristic work from Panticosa is still unpublished (manuscript conserved at the Universidad Complutense of Madrid). Taxonomically, he was a splitter, and the varieties he described do not seem to have any botanical value.

Zubía's scientific relationships

In Spain, the name of Zubía was virtually ignored by contemporary "official" botanists, although he was a member of several botanical societies (Sociedad Botánica Barcelonesa, Sociedad Española de Historia Natural, Sociedad Linneana Matritense). Only a recently discovered letter (De Jaime Lorén 1997) relates Zubía to the botanists from Aragón, Francisco Loscos (1823-1886) and José Pardo (1822-1909).

In Europe, reputed botanists such as the French abbé Michel Gandoger (1850-1926) and the Austrian Eugen Von Halácsy (1842-1913) and Karl Keck (1825-1894) collaborated with Zubía through plant interchange, and thus it can be supposed that samples collected by Zubía might be found at present in several European herbaria. Letters from Zubía to Halácsy and Keck are conserved (Núñez Olivera & al. 1997), but no correspondence between Zubía and Gandoger has still come to light. Nevertheless, the relationship between both botanists was intense, since Gandoger named after Zubía one genera (*Zubiaea*, a partition of *Daucus*) and tens of his microspecies. Furthermore, more than a thousand of plants sent by Zubía are recorded in *Flora Europae* by Gandoger (Gandoger 1883-1891). However, only some bryophytes (at present, no vascular plants to our knowledge) collected by Gandoger in France are included in Zubía's Herbarium (Martínez Abaigar & Núñez Olivera 1996). No plant sent by Keck or Halácsy has been detected in Zubía's Herbarium either.

In the three letters conserved, two from Halácsy dated in 1882 and one from Keck dated in 1887, Zubía confirmed the reception of plants from Halácsy, proposed to send some from his own herbarium, and rejected a proposal of Keck to collaborate in the *Herbarium normale* of the recently died F. W. Schultz (1804-1876), because of his age and health problems. Zubía also mourned over the deaths of his two last sons (two more sons and one daughter died when they were only babies) and lamented about the lack of a successor in his botanical work. In fact, after his death nobody continued the systematic botanical exploration of La Rioja.

Recognitions to Zubía

The first social homage paid to Zubía occurred in 1899, when the town council of Logroño named a street after him ("Glorieta del Doctor Zubía" still now), after nine years

of deliberations (Jiménez Martínez 1997). In 1926, the recognized Spanish botanist Carlos Pau named after him the hybrid *Centaurea xzubiae* (Pau 1926), a still valid name nowadays (Fernández Casas & Susanna de la Serna 1985). The Spanish mycologist and clergyman L. M. Unamuno Yrigoyen (1873-1943) also named two fungi species after Zubía, *Phylostictella zubiae* and *Rhabdospora zubiae* (Pando de la Hoz & Muñoz Garmendia 1997). Del Pan (1946), the author of the prologue to the "Flora de La Rioja" by Zubía, published a praiseful portrait of such naturalist in a local journal, emphasizing his qualities of modesty, soberness, concern about students' training and outright devotion to work (probably in part a pretext against the personal adversities he suffered). In 1974, the Association of Pharmacists of Logroño, together with the town council and the province government, paid homage to him (Jiménez Martínez 1997). And in 1985 the Instituto de Estudios Riojanos began to publish the scientific journal *Zubía* whose 1997 special issue was dedicated to Zubía himself (Martínez Abaigar 1997).

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