

# Professor Krzysztof Rostański

## – a life of exceptional merit

Karol Latowski

Department of Plant Taxonomy, Faculty of Biology, Adam Mickiewicz University, Umultowska 89, 61-614 Poznań, Poland, e-mail: latowski@amu.edu.pl

In October 2010, Professor Krzysztof Rostański (Fig. 1) celebrated two glorious and noteworthy anniversaries – his 80th birthday and 55 years of his scientific work. What a meritorious occasion for a Jubilee! Professor Rostański has marked his arduous life with numerous achievements, creating a body of permanent heritage to the treasury of knowledge. For these achievements he is well-known and highly-regarded both in Poland and internationally, being considered an eminent specialist in taxonomy. He belongs to the elite group of contemporary botanists, first of all, as an exceptional expert in taxonomic and geobotanical problems concerning the genus *Oenothera* – evening-primrose<sup>1</sup>. Heterogeneous European evening primroses are known for the occurrence of frequent chromosomal aberrations (translocations), yielding specimens with new, although subtle morphological characteristics. This mechanism has become the starting point for a discussion on the determination of boundaries between species, in which Professor Rostański has played a prominent role. He is a co-originator and a consistent proponent of the concept of narrowly understood species (the so-called European school).

Professor Rostański received his education at two academic centres. For three years (1949-1952), he studied in Toruń, where he completed undergraduate studies in biology. He completed graduate studies with a M.Sc. degree in 1954 at the University of Wrocław, under the

supervision of Prof. Stanisław Kulczyński, an outstanding paleobotanist and phytogeographer. It was at the laboratory of his Master – as he calls Stanisław Kulczyński – that Krzysztof Rostański's interest in floristic and ecological problems, as well as taxonomy began to flourish. Thanks to his diligence and talents, he started his scientific career immediately after the completion of his studies at the Department headed by his Master. His passion for plants soon resulted in his being



Fig. 1. Professor Krzysztof Rostański (photograph by A. Rostański)

<sup>1</sup> ослинник (in Belorussian), свещица, пупалка (in Bulgarian), pupalka (in Czech), helokkiöljy (in Finnish), õhtul priimula (in Estonian), onagre (in French), negra (in Spanish), nakvišū (in Lithuanian), vakara primulas (in Latvian), teunisbloem (in Dutch), nachtkerze (in German), nattysolje (in Norwegian), wiesiołek (in Polish), primula (in Portuguese), энотера, ночная свеча, ослинник (in Russian), seara ciubticca-cuculi (in Romanian), pupalka (in Slovak), nattjus (in Swedish), ligetszépe (in Hungarian), rapunci (in Italian)

appointed the position of a custodian at the local herbarium, which collections had been dramatically depleted at the end of the Second World War and required the care of an efficient specialist. It was there that Professor Rostański began his life-long adventure with evening primrose. The first publication was printed soon (1959) in a well-known and regarded national journal and concerned the occurrence of *Oenothera silesiaca* Renner in the Lower Silesia region. It was this problem that Krzysztof Rostański presented in his doctoral dissertation entitled “Taxonomic studies on species from the genus *Oenothera* L., subgenus *Euoenothera*”, defended in 1964 at the University of Wrocław and prepared under the supervision of Prof. Stanisław Kulczyński. It needs to be stressed that by the time he completed the procedure connected with the conferral of the Ph.D. degree he had shown an exceptional activity, publishing as many as 10 papers. Among them, a study on three genera (*Echium*, *Cynoglossum*, *Omphalodes*) for the 10th volume of a monograph of “Flora of Poland”, which is of an unsurpassed importance to the present. Being appointed for such a tremendous task was obviously a considerable distinction for Krzysztof Rostański, M.Sc.

The main body of scientific achievements comprises studies of Professor Rostański devoted to the genus *Oenothera*. In the beginning they pertained to the Silesia region and entire Poland. The following years brought about an extension of the scope of research to the neighbouring countries, soon to extend over almost all Europe. The intensity of his work during the past 50 years may be indicated by the number of published studies. Close to 50 of these almost 100 studies have been devoted to different aspects of the genus *Oenothera*, which became a characteristic identification mark for Professor Rostański. Besides conventional morphological analyses, used in taxonomic diagnoses, there have been publications on floristic and historic phytogeography, attempts at the determination of the degree of naturalisation of new species or constant hybrids, a micromorphological analysis of pollen grain and seed sculpture using the SEM technique, karyological analyses of metaphase plates in the determination of chromosome number, as well as agricultural experiments and photochemical analyses of secondary metabolites. Cultivation of evening primrose on experimental plots has been an important and permanent element of his studies.

As early as mid-1960's, i.e. at an early stage of his scientific activity, Prof. Rostański made an attempt to incorporate mathematical procedures in taxonomy. He applied the dedrite method in the determination of phenetic similarity of evening primroses, which was initially called the Wrocław taxonomy. To these methods he introduced his own specific proposals and clarification of certain terms.

Professor Rostański has had an exceptional ability to initiate cooperation, which fruitful results have contributed to a broadening of knowledge on evening primroses in different aspects. Botanists – florists are well-acquainted with problems with the identification of evening primroses at the level of species. However, a certain aid in the identification is offered by a characteristic habit of plants, which in combination with their prolific occurrence makes them easy to find, particularly during blooming period. Moreover, each co-worker was trained by Professor Rostański in the course of their joint field studies to recognise several most common species and became sensitive to characteristics indicating evening primrose peculiarities. Thanks to his efforts, around a dozen of his disciples from academic centres throughout Poland were co-authors of papers recording the status of regional richness of species and some of them discovered species previously unknown in Poland, which of course were identified by Professor Rostański, e.g. J. Serwatka – *O. cruciata* Nutt., P. Witołowski – *O. juterbogensis* Hudziok and *O. flaemingina* Hudziok, K. Latowski – *O. coronifera* Renner (Fig. 2). A more numerous group of over 20 such co-workers, with whom Professor Rostański published joint results of floristic studies, has comprised botanists from Great Britain, Scandinavia, France, Germany, Austria, the Czech Republic, Italy, Albania, as well as Estonia, Latvia, Lithuania, Belarus, Russia and Ukraine. Thus Professor Rostański has successfully infected many European botanists with his passion. The above mentioned cooperation to a certain degree speeded up the publication of studies of synthetic character. In 2004, Professor Rostański together with his co-workers summed up the status of identification of evening primroses in Estonia, Latvia, Lithuania, Belarus and Ukraine, publishing a regional monograph “The genus *Oenothera* L. in Eastern Europe”. The latest work was published in October 2010 in Kraków (Copyright by W. Szafer Institute of Botany, Polish Academy of Sciences) and summed up 50-year studies on taxonomic diversity and chorology of evening primroses on the European continent, entitled „Evening-Primroses (*Oenothera*) occurring in Europe”. This monograph contains morphological diagnoses of 61 species and more common hybrids, information on their origin and descriptions of their distribution together with maps. The characteristic of each species was supplemented with a colour photograph of a herbarium specimen or a specimen growing in nature, as well as photographs showing key morphological traits. An exceptionally useful role is played by an original, dichotomic key for the identification of all species, together with the specification of characteristics of their internal variation for some of them. Here I would like to particularly stress the fact that the monograph appeared in a two-language, English-Polish version,



thanks to which it has become available to a very wide circle of readers.

Apart from evening primrose, Professor Rostański has also investigated other taxonomic, geobotanical and nature conservation issues. Results of his studies on broadly understood environmental protection, conducted in Upper Silesia, strongly transformed by anthropopressure, are of particular interest. They are reports from experiments and air pollution monitoring

around industrial emission sources, based on lichen species composition, which were used to determine the level of harmfulness and for identification of contamination zones. Studies documenting changes in vascular flora on permanent plots located in pine coniferous forests are also practical in character.

Knowledge of Professor Rostański, combined with his experience of many years, has also resulted in his participation in the discussion on theoretical foundations



**Fig. 2.** *Oenothera coronifera* Renner in the grounds of the Głogów railway station (photograph by K. Rostański, 4.07.2001)

of geo-historical classification of synanthropic flora. This problem was investigated in several publications, of which the best known publication is a study on ephemerophytes in Poland, published in 1987.

A considerable part of the scientific achievements of Professor Rostański comprises papers on the occurrence of grasses in Poland (*Digitaria*, *Setaria*, *Echinochloa microstachya*), new taxa for Polish flora (*Geranium wilfordii*, *Asarum europaeum* L. for. *pseudocaucasicum* Pawł.), or in the Silesia region (*Alchemilla cymatophylla*), as well as many other interesting species (*Euphorbia epithymoides*, *Matteucia struthiopteris*). In addition, for some volumes of the multi-volume work “The Flora of Poland”, Professor Rostański prepared sections on several genera from the family Asteraceae (*Aster*, *Bellidiastrum*, *Callistephus*, *Echinops*, *Galatella*, *Linosyris*, *Solidago*) and the entire family Euphorbiaceae.

The contribution of Professor Rostański to the task of educating young scientists has been outstanding. Under his supervision 200 young people received their M.Sc. degrees and 22 received their Ph.D. degrees. This has been obviously connected with the personality of Professor Rostański – a cheerful, kind, cooperative academic teacher, and, at the same time, a person with a great passion for science.

When writing on his achievements we have to mention publications for the broadly understood teaching activity. Together with his son, Krzysztof Marek Rostański, he developed a key for the identification of trees and shrubs. Initially it was a book containing a selected group of species. As very soon the book was sold out, an extended version was prepared, enriched with colour photographs and diagnostic drawings. The following editions (a total of as many as four!) make it possible to identify species not only on the basis of characteristics observable during the vegetation season, but also taking into consideration characteristics of leafless twigs.

However, a work of particular merit is obviously his academic textbook entitled “Lectures on systematic botany”, with already three editions, of which each successive one was extended and supplemented with the latest findings. It is highly useful, particularly, for students of biology. The first chapters of this textbook introduces the reader to the difficult problem of the creation of systems in the historical perspective, i.e., from artificial systems to contemporary natural systems with a high degree of prognostic accuracy. A systematic review of individual groups was consciously preceded by several, most basic principles and rules, which in accordance with the regulations of the International Code of Botanical Nomenclature are to be applied in

plant taxonomy. These rules pertain to the technique of determining nomenclature types, application of the principle of priority, as well as the hierarchic system of taxa, together with endings of supra-generic units used to identify them.

Professor Rostański has also been acclaimed as the Author of a publication of literary merit, a particularly colourful and interesting account of his scientific adventure of many decades. It is an article included in the collective work entitled “The expedition for the green treasure”, based on an idea by the late Professor Janusz B. Faliński. The very title, “Following new evening primroses throughout old Europe”, arouses interest and the text is evidence of the attractiveness of the style. Professor Rostański travelled not only throughout Europe. He was also on a long-term scientific stay in Cuba, where he went twice, spending there a total of 12 months.

We need to mention also his highly praised articles, which required preliminary surveys of archive literature sources, concerning the history of science and presenting the lives and activities of Szymon Syreniusz, Jakub Waga or Edward Strasburger.

On the 15th October, i.e., a day before his 80-th birthday, his co-workers and former students will organise a commemorative scientific session on “Contemporary times and prospects for plant taxonomy in Poland. With evening primrose in view”. Papers requested by the organisers will be provided by Adam Zając on “Selected current problems in biology”, Karol Latowski on “Morphology in plant taxonomy – between a written source and truth”, Barbara Sudnik-Wójcikowska on “Burial mounds as microcentres of biodiversity”, Vladimir Jehlik on “*Oenothera* species in river harbours of Central Europe” and, Adam Rostański on “Genus *Oenothera* L. in the collection of the Scientific Herbarium of the Silesian University – Herbarium KTU”.

The outstanding body of publications written by Professor Krzysztof Rostański is impressive, comprising jointly 230 items. A chronological review of this long list shows its exceptional rhythmicality and repeated continuity. For the period of 56 years, i.e., from his first paper printed in 1956, at least one study has been published every year, although most frequently there were two or more of them. In the last 20 years the number of publications increased to as many as 11, with the focus definitely shifting towards works summing up his knowledge. I would like to take this occasion of both outstanding anniversaries and wish our highly respected Professor good health and many successes in the realisation of further scientific projects, particularly those related to evening primroses, his lifetime passion. Ad multos annos!!!

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