Botanica SERBICA

Professor dr Ljubinka Ćulafić

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More than fifty years ago Ljubinka Ćulafić decided that her lifelong interest should be Biology, especially Botany. She was born on 10th December 1937 in Belgrade in the family of professor Niko Martinović, also a biologist. Lj. Ćulafić completed primary and secondary school in Cetinje (Montenegro). She began her studies of biology at the Faculty of Natural Sciences and Mathematics, University of Belgrade, from which she graduated in 1960. She accomplished postgraduate studies in Plant Physiology in 1972 by defending a master thesis relating to hormonal photoperiodic induction in plants. After that, she obtained her PhD in Biology in 1978 under the supervision of professor Ljubiša Glišić at the University of Belgrade. The doctoral thesis "Study of the role of phytohormones in the growth and development of vegetative and reproductive organs of the dioecious plants *Spinacia oleracea* L. and *Rumex acetosella* L." addressed the issue of the role of phytohormones in organ development of some dioecious plants.

Professor Ćulafić spent her entire professional career at the Faculty of Biology, University of Belgrade rising from the position of Teaching assistant, elected in 1961, through all ranks, Assistant professor (1979), Associate Professor (1989) to Full Professor (1992) at the Chair of Plant Physiology. She was the Head of the Chair in the period from 1989 to 2001 when she ended her university career by retiring.

The scientific activity of Lj. Ćulafić was in the field of Physiology of Plant Development with emphasis on hormonal and photoperiodic regulation of flowering and sex expression. To improve her knowledge related to this field of Plant Physiology, Lj. Ćulafić when still an assistant, in 1963 went for specialization to the Institute of Plant Physiology "K.A.Timiryazev", of the Russian Academy of Science in Moscow, in the laboratory of academician M.H. Chailakhyan, where she interacted with many other scientists, mostly influenced by the ideas and works of A.G. Lang (USA National Academy) and A.Lj. Kursanov (Moscow University). This was the cross-roads which turned Lj. Ćulafić towards dedicating her scientific work to the physiology of flowering. The long continuous collaboration led to many joint publications, exchange of ideas, visits, invited lectures, and scientific meetings.

The scientific work of Lj. Ćulafić can be summarised in four directions: 1. Analyses of endogenous hormones of dioecious plants; 2. Flowering in "albino" plants; 3. Plant tissue culture, and 4. Establishing *in vitro* tissue culture of some endemic and relic plants, namely *Dioscorea balcanica* Koš., a potential producer of steroid saponins, and the Balkan endemic pines with the aim of their vegetative propagation.

Photoperiodic events, hormonal processes and development of dioecious plants *Spinacia oleracea* (spinach) and *Rumex acetosella* (red sorrel) were the subjects of her master and doctoral theses. Later on, the species *Rumex acetosa, Chenopodium rubrum* and *Dioscorea balcanica* were included in investigations of hormonal regulation of physiological developmental processes. Thanks to culture *in vitro*, genetically uniform material was obtained from clones of male and female plants, thus enabling the study of the role of hormones in sex expression. In addition, related studies on *in vitro* cultivated apical buds of S. *oleracea* and *R. acetosella* revealed the effect of gibberellins, cytokinins and retardants on the flowering of male and

Lj. Ćulafić at the Institute of Plant Physiology "K.A.Timiryazev" of the Russian Academy of Science in Moscow

Lj. Ćulafić with Professor M.H. Chailakhyan and members of his team in Moscow

female plants as well as their vegetative propagation and regeneration.

In vitro culture organogenesis of the species *R. acetosella and R. acetosa* was induced from various plant organs and the optimal procedure was established for multiplication and regeneration of these plants. Characterization of endogenous cytokinins by HPLC and gas liquid chromatography gave reliable results on the presence of cytokinins, otherwise previously established by biotests. Besides, plant hormones such as zeatin, zeatin ribosides, isopentenyl adenine and isopentenyl adenosine were also found. It was clear that male and female flowers of *R. acetosella* differed regarding their metabolism of these hormones in the final stage of flower development.

The results of induction of somatic embryogenesis by clones of *R. acetosella* were noteworthy not only for the study of flowering but also for other aspects of developmental plant physiology. Plants obtained by somatic embryogenesis were further examined for phototoperiodic reaction and genetic stability of sex expression, after *in vitro* hormone application.

Indispensable experience in experimental studies on plant hormones and the physiology of flowering focused Lj. Ćulafić's interest in such investigations on some representatives of the Balkan endemic flora. This research started on the Balkan endemic species *Dioscorea balcanica*. Namely, in the 1960s, some scientists began working on biochemical and physiological characteristics of the endemic species of the genus *Dioscorea*, being especially interested in diosgenin production in rhizomes of these plants. The investigations extended to somatic embryogenesis and cloning of *Dioscorea* plants by a number of phytophysiologists. Ljubinka was also involved in similar research, first through collaboration with colleagues from Moscow institutions, who studied the Caucasian species, *Dioscorea caucasica*. In Belgrade, she continued experiments on the Balkan endemic species *Dioscorea balcanica*, introducing the plant with *in vitro* culture. The purpose of these studies was to promote the biotechnological production of diosgenin as a pharmaceutical raw material. Simultaneous investigations were conducted with the Caucasian endemic *Dioscorea caucasica*.

During subsequent years, Lj. Ćulafić transferred her interest to many younger colleagues, both collaborators and students and broadened the subject to endemo-relic pines *Pinus heldreichii* (Bosnian pine) and *Pinus peuce* (Macedonian pine), which resulted in both fundamental and applicative discoveries and results were presented in various publications.

As a member of the Chair of Plant Physiology in the Institute of Botany and Botanical Garden "Jevremovac" of the Faculty of Biology, Lj. Ćulafić was in charge of

Lj. Ćulafić standing by the plant *Dioscorea balcanica*

laboratory work for the course of Plant Physiology and Plant Anatomy. However, since being elected as Assistant professor and throughout her teaching career she has taught the basic course on Plant Physiology, as well as an elective course on Phytohormones. The same courses Lj. Ćulafić was teaching at the Faculty of Sciences and Mathematics in Kragujevac. She was a supervisor of 4 master theses and 4 doctoral theses and a member of the committee for 21 master and 13 doctoral theses. Besides, she was a head and/or a member of the committee for over 50 university student diploma works.

Educational activities of professor Ćulafić also included Seminars for high school professors, and working with high school students during their annual competitions within the organization Youth in Science.

The bibliography of Lj. Ćulafić consists of 138 titles including monographs and chapters in monographs, reviews and scientific articles, as well as communications at scientific meetings. Her teaching activities and long-time experimental and laboratory work with generations of students led to publishing her co-authored first university manual for the course of Plant Physiology (1992), as well as the university textbook "Plant Physiology". The university textbook, co-authored by her, Mirjana Nešković and Radomir Konjević, was first published in 2003, while its second edition appeared in 2010. The quality of scientific results of Lj. Ćulafić has been demonstrated through a number of citations in relevant publications both at home and abroad (in total 161 citations according to the Science Citation Index database from 1967 to 1995 and Web of Science from 1996 to 2014).

Ljubinka Ćulafić also co-authored several secondary school textbooks that were used not only in Serbia, but also in Montenegro, Bosnia and Herzegovina and Macedonia.

She also successfully realized joint research programs studying aspects of plant physiology, with several international centres and institutions, such as Timiryazev Institute of Plant Physiology of the Russian Academy of Science – Laboratory of Growth and Development, Laboratory of Hormonal Regulations in Plants of the Institute of Experimental Botany in Prague, Institute of Photosynthesis from Pushchino, the Department for Tissue Culture of Medicinal Plants of the Faculty of Pharmacy in Warsaw, The Chair for Plant Physiology of the University in Sophia, etc. She was coordinator of the bilateral projects "Cryobank" and "Cytoresourses" carried out by the Department of Plant Physiology of the Institute for Biological Research "Siniša Stanković" in Belgrade and Timiryazev Institute of Plant Physiology - Laboratory for Cryopreservation from Moscow. As an adviser she was involved in establishing and organizing the Laboratory for Biotechnology of the Institute for Agricultural Research in Podgorica (Montenegro). Professor Ćulafić also achieved the fruitful collaboration with the Republic Institution for the Protection of Nature in Podgorica and Biological Department of the Faculty of Sciences and Mathematics in Podgorica (Montenegro). At one time she was engaged as an adviser in food processing of Mediterranean aromatic plants for the Montenegrin food production industry "Crnagorakop".

Lj. Ćulafić working in tissue culture lab of the Institute of Botany of the Faculty of Biology in Belgrade

Throughout her lifetime, Lj. Ćulafić has participated as a collaborator and/or a head of projects funded by the Ministry of Education and Science, Republic of Serbia, as well as by other institutions or commercial organizations. She headed the project funded by the Board for Biomass of the Serbian Academy of Sciences and Arts, entitled "Culture of plant cells and organs – basis for new biotechnologies". However, Lj. Ćulafić cherished the closest scientific relations with members of the Department of Plant Physiology of the Institute for Biological Research "Siniša Stanković" from Belgrade. From the very beginning of her career, she participated in a number of collaborative projects and experiments, as well as in educational advancement of young plant

physiologists in this Department. She had also fruitful collaboration with researchers from the Maize Research Institute, Zemun Polje, Belgrade, Serbia.

In addition, during her scientific and teaching activities, Lj. Ćulafić undertook a number of social obligations. As a member of the Institute of Botany and Botanical Garden "Jevremovac", she participated in activities of the Faculty of Biology of Belgrade University as a Vice Dean (1981-83 and 1983-85), a member and president of the Faculty's Council, member of the Faculty's Commissions, a member of Syndicate Management Board, etc. For two terms she was a member of the Scientific Council of the Institute for Biological

Lj. Ćulafić with colleagues of the Department of Plant Physiology (Z. Giba, R. Konjević, D. Grubišić, A. Sabovljević and D. Terzija) during her retirement party in 2001

Research "Siniša Stanković". She has been a member of several professional associations: International Association for Plant Tissue Culture, International Working Group of Flowering, International Plant Growth Substances Association, Yugoslav Association for Plant Physiology, Serbian Biological Society and Society for Plant Physiology of Serbia. Following family tradition and her personal decision, she was a member of the Communist Party of Yugoslavia.

Professor Ćulafić was awarded numerous Certificates of appreciation by different scientific institutions, faculties, professional societies and organizations for long-time work and contribution to their development. In addition, in 1985 she received the Silver Star Medal of National Merit by decree of the presidency of the Socialist Federal Republic of Yugoslavia for merits and achievements in work of significance for socialistic building of the country. In 2014, she was honored by the Golden Diploma in recognition of her outstanding and valued contribution to the development and promotion of biological and related sciences, as well as for the advancement of The Archives for Biological Sciences, the journal of the Serbian Biological Society.

During her whole scientific and teaching career she had successful collaboration with and great support from Professor Mirjana Nešković, whose doctoral and master student she was. Their relationship was and still is very strong, as demonstrated through many professional activities, especially in writing textbooks. Lj. Ćulafić always had a successful and friendly cooperation with older and younger fellow members of the Institute of Botany and Botanical Garden "Jevremovac".

Probably the most significant gift Professor Ćulafić gave to her collaborators is her strong belief that if one is persistent enough and does not give up while solving a problem, eventually a solution will be found. In this lifelong search for answers, Ljubinka Ćulafić has taught us that we should not strive only for our own success, but we should also enjoy the success of other fellow scientists as if they were ours.

On behalf of all of us who have had pleasure and privilege to work with Ljubinka, I wish her good health and further success in research, for many years to come.

Professor dr Zlatko Giba,
Chair for Plant Physiology of
the Faculty of Biology,
University of Belgrade, Serbia

Academician dr Vukić Pulević
Montenegrin Academy of Sciences and Arts

Selected references of Prof. Dr. Ljubinka Ćulafić (1961-2015)*

Cvetković-Muntanjola M, Nešković M & Ćulafić Lj. 1968. Morphogenic response of *Aspergillus aureolatus* Munt.-Cvet. & Bata to different carbohydrates and light. *Glasnik Instituta za botaniku i Botaničke bašte Univerziteta u Beogradu* **3**: 29-34.

Nešković M & Ćulafić Lj. 1968. The influence of light on the content of growth substances in pea shoots. I. Effect of red light in the extractable indole auxins. *Glasnik Instituta za botaniku i Botaničke bašte Univerziteta u Beogradu* **3**: 255-262.

Čajlahjan MH, Martinović-Ćulafić Lj & Kočankov VG 1969. O himičeskoj reguljaciii rosta i formirovanija generativnih organov dvudomnih rastenij. *Doklady Akademii Nauk SSSR* **189**: 662-665.

Ćulafić Lj. 1973. Induction of flovering of isolated *Spinacia oleracea* buds in sterile culture. *Glasnik Instituta za botaniku i Botaničke bašte Univerziteta u Beogradu* **8**: 53-65.

Nešković M, Konjević R & Ćulafić Lj. 1974. Changes in the metabolism of gibberellins induced by light. In: Schreiber K, H.R. Schutte, G. Sembdner (eds.) Biochemistry and Chemistry of Plant Growth Regulators, Halle p. 91-97.

Ćulafić Lj & Nešković M. 1974. Indole auxins in spinach plants grown in long and short days. *Biol. Plantarum* **16**: 359-365.

Ćulafić Lj & Nešković M. 1975. A study of auxins and gibberellins during shoot development in *Spinacia oleracea* L. *Arch. Biol. Sci.* **26**: 19.

Ćulafić Lj & Nešković M. 1980. Effect of growth substances on flowering and sex expression in isolated apical buds of *Spinacia oleracea* L. *Physiol. Plantarum* **48**: 588-591.

Seidova F & Ćulafić Lj. 1982. The behaviour of the shoot apical meristem in *Chenopodium rubrum* under condition non-inductive for flowering. *Biol. Plantarum* **24**: 471-473.

Ćulafić Lj, Grubišić D & Nešković M. 1982. Endogenous gibberellin-like substances and inhibitors in callus tissue of *Spinacia oleracea* L. *Glasnik Instituta za botaniku i Botaničke bašte Univerziteta u Beogradu* **15**: 29-35.

Ćulafić Lj, Konjević R & Nešković M. 1983. Flowering of *in vitro* grown spinach shoots in the presence of herbicide Sandoz 9789. *Biol. Plantarum* **25**: 155-57.

Grubišić D, Ćulafić Lj, Nešković M. 1984. *In vitro* vegetative propagation of *Cercis siliquastrum* L. *Glasnik Instituta za botaniku i Botaničke bašte Univerziteta u Beogradu* **18**: 77-80.

Ćulafić Lj. 1984. Projavlenije pola v culture. In: Anonymous (ed.). Hormonalna regulacija ontogeneze rasteni. Nauka, Moskva. p. 202-214.

Jablanović M & Ćulafić Lj. 1984. Hormonalna regulacija razvića vinove loze (*Vitis vinifera* L.). In: Sarić MR (ed.). Fiziologija vinove loze, *Posebno izdanje SANU*, 207-231.

Ćulafić Lj, Nešković M & Vujičić R 1984. Two morphogenic patterns of plant regeneration in *Rumex acetosella* callus tissue. "Proceedings of International Symposium: Plant Tissue and Cell Culture, Application to Crop Improvement", Olomouc, ČSSR. p. 161-162,

Ćulafić Lj, Samofalova A & Nešković M. 1987. *In vitro* organogenesis in two dioecious species, *Rumex acetosella* and *R. acetosa* L. (Polygonaceae). *Plant Cell Tissue and Organ Culture* **11**: 125-131.

Ćulafić Lj, Budimir S, Vujičić R & Nešković M. 1987. Induction of somatic embryogenesis and embryo development in *Rumex acetosella* L. *Plant Cell Tissue and Organ Culture* **11**:133-139.

Čajlahjan MH, Bavrina TV, Ćulafić Lj, Podoljnij V & Finogina N. 1987. Fotoperiodičeskaja reakcija cvetanija zeljonih i albinosnih rastenij *Sinapsis alba* i *Chenopodium rubrum* v culture *in vitro*. *Doklady Akademii Nauk SSSR* **297**: 1277-1280.

Jelić G, Ćulafić Lj, Kapor S & Nešković M. 1988. Endogenous cytokinins in the vegetative and reproductive phases of development in the dioecious plant *Rumex acetosella* L. *Plant Growth Regulation* **7**: 53-58.

Nešković M & Ćulafić Lj. 1988. Spinach (*Spinacia oleracea* L.). In: Bajaj YS (ed.) Biotechnology in Agriculture and Forestry, Crops II. Springer-Verlag, Berlin Heidelberg, Vol. 6, p. 370-384.

Bavrina TV, Ćulafić Lj & Čajlahjan MH 1991. Vlijanije dlinidnja i fitohormonov na cvetanije i ekspresiju pola u dvudomnih rastenij Šćavelja (*Rumex acetosella* L.). *Doklady Akademii Nauk SSSR, Fiziologija rastenij* **37**: 1510-14.

Grubišić D, Ćulafić Lj, Bojović-Cvetić D. 1991. Regeneracija Dioskorei kavkazkoj (*Dioscorea caucasica* Lipsky) i Dioskorei balkanskoj *D. balcanica* Košanin) v kuljuture *in vitro*. *Fiziologija rastenij* 38: 1018-1022.

Ćulafić Lj. 1991. Klonalnoe mikrorazmnoženie endemičnogo rastenija flori Jugoslavii *Dioscorea balcanica*. Proceedings of International Symposium:"Biologija kultivirujemnih kletok i biotehnologija", Nauka, Moskva. p. 225-229.

Ćulafić Lj. 1991. Clonal micropropagation of *Dioscorea balcanica,* an endemic species of the Yugoslav flora. In: Butenko RG (ed.). Biology of cultivated cells and plant biotechnology. Special Issue, Nauka, Moscow.

Đurđević L, Ćulafić Lj, Kozomara B, Kof E & Kefeli VI. 1992. Soderženije fenolnih veščestv u dvudomnovo rastenija šćavelja (*Rumex acetosella*). *Fiziologija i biohimija kulturnih rastenij* **24**: 64-68.

Ćulafić Lj, Tešević V, Đoković D & Kozomara B. 1992. Endogenous cytokinins in flowers of male and female clones of *Rumex acetosella* L. In: Kamínek M, Mok DWS & Zažímalová E. Physiology and Biochemistry of Citokinins in Plants, Symposium, Liblice, Czechoslovakia, September 10-14,. Xii 507p. SPB Academic Publishing, The Hague, Netherlands. p. 381-383

* the total of 163 bibliographic units include monographs, book chapters, university and high school textbooks, articles, communications and invited lectures (fully printed).

Živanović B & Ćulafić Lj. 1992. Photoperiodic induction of flowering in green and photobleached *Chenopodium rubrum* L. ecotype 184 - a short-day plant. *Biol. Plantarum* **34**: 457-460.

Grubišić D, Ćulafić Lj & Bojović-Cvetić D. 1993. Development of aerial tubers in plants of relict species *Dioscorea balcanica* Košanin and *Dioscorea caucasica* Lipsky. *Fiziologija rastenij* **40**: 245–249.

Ćulafić Lj, Grubišić D, Vujičić R, Volkova LA & Popov AS. 1994. Somatic embryo production *in vitro* in *Dioscorea caucasica* Lipsky and *Dioscorea balcanica* Košanin and cryopreservation of their organogenic callus tissues. *Russian Jurnal of Plant Physiology* **41**: 821–826.

Šavikin K, Grubišić D, Menković N, Ristić M & Ćulafić Lj. 1994. Diosgenin content in calluses and organs of *Dioscorea balcanica* Košanin and *D. caucasica* Lipsky, regenerated in *in vitro* cultures. *Rastitelnii Resursi* **30**: 102–106.

Nešković M, Ćulafić Lj & Vujičić R. 1995. Somatic embryogenesis in buckwheat (*Fagopyrum* Mill) and sorrel (*Rumex* L). In: Bajaj YS (ed.). Biotechnology in Agriculture and Forestry 31. Springer-Verlag, Berlin, Heidelberg, Germany. p. 412-427.

Živanović B, Ćulafić Lj & Filipović A. 1995. The effects of hormones and saccharides on growth and flowering of green and herbicides-treated *Chenopodium rubrum* L. plants. *Biol. Plantarum* **37**: 257-264.

Popov AS, Volkova LA & Ćulafić Lj. 1995. Cryopreservation of *in vitro* plants and plant tissue germplasm. *Glasnik Instituta za botaniku i Botaničke bašte Univerziteta u Beogradu* **29**: 1–8.

Živanović B, Ćulafić Lj & Mitrović A. 1996. Flowering *in vitro* of *Chenopodium rubrum* L. short-day plant and *Chenopodium murale* L. long-day plant. The 10th FESPP Congress, Florence, Italy. From molecular mechanisms to the plant: an integrated approach. Plant Physiology and Biochemistry, Special issue, p. 72.

Šavikin-Fodulović K, Grubišić D & Ćulafić Lj. 1997. Selection of *Dioscorea balcanica* callus lines. *Arch. Biol.* Sci. **49**: 105–112.

Ćulafić Lj, Živanović B & Mitrović A. 1998. The effect of continuous darkness on *in vitro* flowering of *Chenopodium rubrum* L. and *C. murale* L.The 11th FESPP Congress, Varna, Bulgaria. *Bulgarian Journal of Plant Physiology, Special issue*, p. 79.

Živanović B, Ćulafić Lj & Mitrović A. 1998. The effect of glucose and gibberellic acid on growth and *in vitro* flowering of *Chenopodium rubrum* L. and *C.murale* L.. The 11th FESPP Congress, Varna, Bulgaria. *Bulgarian Journal of Plant Physiology, Special issue,* p. 80.

Stojičić D, Budimir S & Ćulafić Lj. 1999. Micropropagation of *Pinus heldreichii*. *Plant Cell Tissue and Organ Culture* 59: 147-150.

Ćulafić Lj, Šavikin-Fodulović K, Grubišić D & Nešković M. 1999. *Dioscorea balcanica* Košanin and *D. caucasica* Lipsky: *In vitro* culture and production of diosgenin. In: Bajaj YS (ed.). Biotechnology in Agriculture and Forestry, Medicinal and Aromatic Plants XI. Springer-Verlag, p. 85-104.

Živanović B, Ćulafić Lj, Mitrović A, Ilias I & Giannakoula A. 1999. The effect of glucose and gibberellic acid on *in vitro* flowering of *Chenopodium rubrum* L. and *C. murale* L. 7th Panhellenic Scientific Conference, Alexandroupolis, Greece. Proceedings, p. 284-288.

Ružić Đ, Cerović R & Ćulafić Lj. 2000. Relationship between the concentration of macroelements, their uptake and multiplication of cherry rootstock Gisela 5 *in vitro*. *Plant Cell Tissue and Organ Culture* **63**: 9-14.

Mitrović A, Živanović B & Ćulafić Lj. 2000. The effects of photoperiod, glucose and gibberellic acid on growth *in vitro* and flowering of *Chenopodium murale*. *Biol. Plantarum* **43**: 173-177.

Mitrović A, Živanović B & Ćulafić Lj. 2000. The effects of growth regulators on flowering of *Chenopodium murale* plants *in vitro*. *Biol. Plantarum* **43**: 451-454.

Ružić Đ, Sarić M, Cerović R & Ćulafić Lj. 2001. Changes in macroelement content of the media and in sweet cherry Inmil GM 9 shoots during *in vitro* culture. *J. Hort. Sci. Biotech.* **76**: 295-299.

Aksenova NP, Konstantinova TN & Ćulafić LJN. 2002. *In memoriam* Akademik Mihail Hristoforovič Čajlahjan (K 100-letiju so dnja roždenija). *Bilten JDFB, Beograd* **10**: 12.

Mitrović A, Živanović B & Ćulafić Lj. 2002. Maternal effect on *Chenopodium rubrum* L. seeds size, germination, growth and flowering *in vitro*. *Ekologija* **37**: 53-58.

Bavrina TV, Lozhnikova VN, Ćulafić Lj & Živanović B. 2002. Flowering of cultivated green and SAN 9789-treated *Chenopodium rubrum* plants exposed to white, blue and red light. *Rus. J. Plant Physiol.* **49**: 460-464.

Ružić Đ, Sarić M, Cerović R & Ćulafić Lj. 2003. Contents of macroelements and growth of sweet cherry rootstock *in vitro*. *Biol. Plantarum* **47**: 463-465.

Mitrović A, Živanović B & Ćulafić Lj. 2003. Effect of darkness on growth and flowering of *Chenopodium rubrum* and *C. murale* plants *in vitro*. *Biol. Plantarum* **46**: 471-474.

Milivojević S, Mitrović A & Ćulafić Lj. 2005. Somatic embryogenesis in *Chenopodium rubrum* and *Chenopodium murale in vitro*. *Biol.Plantarum* **49**: 35-39.

Mitrović A, Giba Z & Ćulafić Lj. 2007. The photoperiodic control of growth and development of *Chenopodium rubrum* L. plants *in vitro*. *Arch. Biol. Sci.* **59**: 203-208

Stojičić D, Uzelac B, Janošević D, Ćulafić Lj & Budimir S. 2007. Induction of somatic embryogenesis in *Pinus heldreichii* culture. *Arch. Biol. Sci.* **59**: 199-202.

Dmitrović S, Mitić N, Zdravković-Korać S, Vinterhalter B, Ninković S & Ćulafić Lj. 2010. Hairy roots formation in recalcitrant-to-transform plant *Chenopodium rubrum* L. *Biol. Plantarum* 54: 566-570.

Mitrović, A., Bogdanović, J., Giba, Z., Ćulafić Lj 2010. Effect of photoperiod during growth of *Chenopodium rubrum* mother plants on properties of offspring. *Biol. Plantarum* **54**: 735-739.

Ćulafić Lj. 2012. *In memoriam* profesor dr Dragoljub Grubišić (1946-2011). *Botanica Serbica* 36: 149.