

PERSONAL INFORMATION

Iliana Ionkova

WORK EXPERIENCE

-
- May 2016- Present **Vice Dean on Science**
Faculty of Pharmacy, Medical University of Sofia (Bulgaria)
University scientific and research programs
- September 2015- Present **Head of Department of Pharmacognosy**
Faculty of Pharmacy, Medical University of Sofia (Bulgaria)
- September 2015- Present **Head of the Bulgarian State Examination Commission in Pharmacy**
Ministry of Health (Bulgaria)
Commission "Medicinal plants and herbal medicinal products"
- May 2010- Present **Professor on Pharmacognosy and Phytochemistry, DSci, PhD**
Faculty of Pharmacy, Medical University-Sofia (Bulgaria)
Scientific research in Phytochemistry, Pharmacognosy and Plant Biotechnology
Pharmacognosy & Pharmaceutical Biotechnology (specializations, lecture/seminar/laboratory course
- November 2009-December 2013 **Expert on phytochemistry in Group 13A**
European Directorate for the Quality of Medicines (EDQM) (France)
- September 2000-May 2008 **Member of Bulgarian Specialized Scientific Council on Pharmacy**
High Attestation Commission (Government) (Bulgaria)
Scientific degree Awarding in Pharmaceutical science
- September 1999-May 2010 **Associate Professor**
Faculty of Pharmacy, Medical University-Sofia (Bulgaria)
Teaching (Lecture Courses, tutoring), scientific work and research: Pharmacognosy, Pharmaceutical Biotechnology; M.Sc. students conducting (biology/pharmacy); Guiding post graduated specialization of M.Sc. on Pharmacy; Guiding Ph. D. Students
- January 1999- Present **Head of Section and Laboratory of Pharmaceutical Biotechnology**
Faculty of Pharmacy, Medical University-Sofia (Bulgaria)
Molecular and biological approaches in the development of new immunostimulating, anticancer, anti-HIV plant therapeutics, Air-lift type fermentor for biosynthesis of biological active plant substances
Development of gene-modified technology for Transgenic Plants, In vitro production and optimization biosynthesis of natural substances in plant cell cultures, Use of DNA for detection of biological active compounds, Bacterium-mediated genetic transformation, Bioconversion by recombinant human CYP450 3A4
- September 1983-August 1999 **Assistant Professor, PhD**
Faculty of Pharmacy, Medical University-Sofia (Bulgaria)
Phytochemical and biotechnological investigation of medicinal plants and herbal products

EDUCATION AND TRAINING

- July 2008- Present **Doctor of Sciences DSci Pharmacy**
High Attestation Commission (Bulgaria)
Thesis title "Pharmaceutically significant biologically active compounds from sources with optimised phytochemical potential"
- September 1996-October 1999 **Specialization on Medicinal Plants and herbal medicinal products**
Ministry of Health (Bulgaria)
Postdoc degree - Pharmacognosy and Phytochemistry
- September 1980-December 1983 **Doctor degree PhD Pharmacy**
High Attestation Commission (Bulgaria)
Thesis title Investigations for saponins, sapogenins and flavonoids of representations of genus Astragalus, spread in Bulgaria
- September 1975-June 1979 **Master of science Pharmacy**
Faculty of Pharmacy, Medical University-Sofia (Bulgaria)

ADDITIONAL INFORMATION

Expertise Phytochemical analysis: Isolation, identification techniques for plant natural products (HPLC, LC-MS, UV, GC-MS, IR, NMR, COSY, NOESY etc.)
Development of technology for biosynthesis of biological active substances
Development of analytical methods for control of herbal drugs and herbal drug preparations in a research environment (from 1980 up to now)
Phytochemical methods development and verification in a laboratory (Member of National Pharmacopoeia Committee, Herbal Drugs)

Publications Scientific Papers: more than 190, Impact factor over 60, more than 2000 citations
Books: 10 (monographies and books, 4 published by Springer Verlag)
Reports and published contributions to international congresses: 70
Textbooks and teaching materials 8

SELECTED PUBLICATIONS

- Nikolov St., I. Ionkova, D. Panova, H. Budzikiewicz, E. Schroder (1985) Soyasapogenol B from *Astragalus angustifolius* lam. *Comptes rendus de l'Academie Bulgare des Science*, 38(7), 875-879
- Ionkova I., L. Witte, A. W. Alfermann (1989) Production of alkaloids in transformed root cultures of *Datura innoxia*, *Planta Medica*, 55:229
- Doerk K., I. Ionkova, L. Witte, A. W. Alfermann (1989) Synthesis of tropane alkaloids in hairy root cultures of *Datura* and *Hyoscyamus* species, *Planta Medica*, 55:688
- Ionkova I. (1990), Isolation and HPLC/TLC analyses of major flavonoids from *Astragalus aitosensis* MB (Fabaceae), *Planta Medica*, 56: 581
- Ionkova I., A. W. Alfermann (1990), Transformation of *Astragalus* species by *Agrobacterium rhizogenes* and their saponin production, *Planta Medica*, 56: 634
- Ionkova I., St. Ninov, D. Kolev, A. W. Alfermann (1991) Secondary constituents of in vitro cell and transformed root cultures of *Althaea officinalis* L., var *Russalka*, Malvaceae, *Planta Medica*, 57(8): A41-42
- Ionkova I. (1992) Potential of transformed root cultures from *Hyoscyamus aureus*, for biosynthesis of tropane alkaloids, *Biotechnology and Bioeng.*, Sofia, Vol 6(3), 41-43
- Ionkova I. (1992) Alkaloid production of *Hyoscyamus reticulatus* plant and transformed root cultures, *Biotechnology and Bioeng.*, Sofia, vol.6(2), 50-53

Ninov St., I. Ionkova, D. Kolev, (1992) Constituents from roots of *Althaea officinalis*, var. *Russalka*, Malvaceae, *Fitoterapia*, Ital LXIII, N5: 474

Ionkova I., L. Witte, A. W. Alfermann (1994) Spectrum of tropane alkaloids in transformed roots of *Datura innoxia* and *Hyoscyamus gyoerffyi*, cultivated in vitro, *Planta Medica*, 60 (4): 382-384

Ionkova I. (1992) Alternative sources of biological active substances from *Althaea officinalis*, var. *Russalka*, *Comptes rendus de l'Academie Bulgare des Science*, vol. 45, N:9, 137-140

Ionkova I., Z. Hu, A. W. Alfermann, (1993) Polysaccharide Production by Hairy Root Cultures of Some Higher Medicinal Plants, *Planta Medica*, 59(7): A 658

Ionkova I., H. Budzikiewicz, A. W. Alfermann, (1993) Cycloartane-Derived Saponin from Transformed Root Cultures of *Astragalus mongholicus*, *Planta Medica*, 59(7): A66

Tape R., H. Budzikiewicz, Ionkova I., A. W. Alfermann (1994) Triterpene glycosides from transformed root cultures of *Astragalus mongholicus* Bge, *Spectroscopy* (IOS Press, USA), 12 (1):1-8

Ionkova I., T. Kartnig (1997) Densitometric determination of cycloartane triterpene saponins from the transformed root cultures of *Astragalus mongholicus* Bge., *Die Pharmazie*, vol. 52 (3): 218-220

Ionkova I., T. Kartnig, A. W. Alfermann (1997), Cycloartane saponin production in hairy root cultures of *Astragalus mongholicus* Bge., *Phytochemistry*, vol. 45, N 8, 1597-1600

Bucar, S. Ninov, I. Ionkova, T. Kartnig, M. Schubert-Zsilavec, I. Asenov, B. Konuklugil (1998), Flavonoids from *Phlomis nissolii*, *Phytochemistry*, vol. 48 (3): 573-575

Ionkova I., A. W. Alfermann (2000), Use of DNA for detection and isolation of Potential Anticancer Agents From Plants, *Pharmacy*, Sofia, 1-2:10-16

Vasilev N., P. Nedialkov, I. Ionkova and S. Ninov (2004) HPTLC densitometric determination of justicidin B in *Linum* cultures in vitro, *Die Pharmazie*, Vol.59(7), p. 528-529

Vasilev N. and I. Ionkova (2004) Lignan accumulation in cell cultures of *Linum strictum* ssp. *strictum* L. *Acta Pharmaceutica* 54, 347-351 N.

Vasilev and I. Ionkova (2005) Cytotoxic activity of extracts from *Linum* cell cultures. *Fitoterapia* 76, 50-53

Vasilev N., G. Momekov, M. Zaharieva, S. Konstantinov, P. Bremner, M. Heinrich, I. Ionkova, (2005), Cytotoxic activity of a podophyllotoxin-like lignan from *Linum tauricum* Willd, *Neoplasma*, 5, 425-429

Vasilev N. and I. Ionkova (2005) Lignan production by cell cultures of *Linum setaceum* and *Linum campanulatum*. *Pharmaceutical Biology*, Vol.43, No.6, 1-3

Vasilev N., Elfahmi, R. Boss, O. Kaiser, G. Momekov, S. Konstantinov, Iliana Ionkova (2006), Production of Justicidine B, a Cytotoxic Arylnaphthalene Lignan from Genetically Transformed Root Cultures of *Linum leonii*, *JNP*, vol.69 Iss.7, pp 1014-1017

Nikolay P. Vasilev, Iliana I. Ionkova, (2006), Isolation and Structure Elucidation of Aryltetralin Lignans from *Linum tauricum* ssp. *bulgaricum*, *Pharmacognosy Magazine*, vol. 2., Iss. 7, pp.172-177

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Vasilev N., M. Julsing, A. Koulman, C. Clarkson, H. Woenderbag, I. Ionkova, R. Boss, J. Jaroszewski, O. Kaiser, (2006) Bioconversion of deoxypodophyllotoxin into epipodophyllotoxin in *E. coli* using human cytochrome P450 3A4, *J. of Biotechnology*, 126, 383-393

Ionkova, I. Antonova, G. Momekov, E. Fuss (2007) Cytotoxic activity of extracts from Bulgarian *Linum* species, *Pharmacognosy Magazine*, vol.3, Issue 1:192-195

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Nikolov St., G. Momekov, G. Kitanov, I. Ionkova, I. Krasteva, R. Toshkova, S. Konstantinov, P. Nedialkov, M. Karaivanova, (2007), Exploitation of the Bulgarian floras biodiversity as a source of antineoplastic agents: current challenges and perspectives, *Biotechnology&Biotechnol. Equipment*, vol. 21, 4:471-477

Vasilev Nikolay, Rainer Ebel, RuAngelie Edrada, A. Wilhelm Alfermann, Elisabeth Fuss, Iliana Ionkova, Ana Petrova, and Thomas J. Schmidt, (2008), Lignan variability in *Linum* species of section *Sylinum* occurring in Bulgaria, *Planta Medica*, 74: 273-280

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Ionkova I., E. Fuss, (2009), Influence of different strains of *Agrobacterium rhizogenes* on induction of hairy roots and lignan production in *Linum tauricum* ssp. *tauricum*, *Pharmacognosy Magazine*, vol. 4, 17: 14-18

Ionkova I., (2009), Optimization of flavonoid production in cell cultures of *Astragalus missouriensis* Nutt. (Fabaceae) *Pharmacognosy Magazine*, vol.4, Issue 18: 92-97

Ionkova I., (2009), Anticancer compounds from in vitro cultures of rare medicinal plants, *Pharmacognosy Reviews*, Vol. 2, Issue 4: 206-218

Ionkova I., (2009), Effect of methyl jasmonate on production of ariltetralin lignans in hairy root cultures of *Linum tauricum*, *Pharmacognosy Research*, vol. 2, Issue 2: 102-105

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Ionkova, P. Proksch, (2009), From planta to pharmaca: anticancer agents, *Farmacia*, vol. LIV, (1-4): 45-56

Ionkova I., I. Antonova, G. Momekov, (2010), Effect of methyl jasmonate on production of ariltetralin lignans in hairy root cultures of *Linum thracicum* ssp. *thracicum*, *Proceedings of 6th Conference on Aromatic and Medicinal Plants - CMAPSEEC*, Antalya April 18-22, Turkey, 536-543

Ionkova I., I. Antonova, G. Momekov, E. Fuss (2010), Production of Podophyllotoxin in *Linum linearifolium* in vitro cultures, *Pharmacognosy Magazine*, vol.6 (23): 178-183

Ionkova, G. Momekov, P. Proksch, (2010), Effects of cycloartane saponins from hairy roots of *Astragalus membranaceus* Bge., cultivated in bioreactor with respect to human tumor cell targets, *Fitoterapia (Ital)*, 81: 447-451

Schmidt T., S. Hemmati, M. Klaes, B. Konuklugil, A. Mohagheghzadeh, I. Ionkova, E. Fuss, A.W. Alfermann, (2010), Lignans in *Linum* species Chemodiversity in the light of systematics and phylogeny, *Phytochemistry*, 71(14-15): 1714-1728

Berkov S., S. Romanic, M. Herrerad, F. Viladomata, C. Codina, G. Momekov, I. Ionkova, J. Bastida, (2010), Antiproliferative and apoptotic alkaloids from *Crinum zeylanicum*, *Phytotherapy Research*, vol.25 (11): 1686-1692

Berkov S., M. Nikolova, N. Hristosova, G. Momekov, I. Ionkova, and D. Djiljanov, (2010), GC-MS Profiling of Bioactive Extracts from *Haberlea rhodopensis*: An Endemic Resurrection Plant, *J. of Serbian Chemical Society*, Vol. 76, No. 2, p. 211-220 (2011).

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Karamalakova Y., I. Ionkova, G. Nikolova, P. Hadjibojeva, A. Tolekova, V. Gadjeva, R. Arora, R. K. Sharma and A. Zheleva, (2010), Comparative in vitro and ex vitro spectroscopy study of the levels of lipid peroxidation processes in livers and kidneys of mice after treatment by naturally isolated antioxidants, *Trakia J. of science*, vol. 8, suppl.2: 137-143

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lonkova I., P. Sasheva, T. lonkov, G. Momekov, (2013), *Linum narbonense*: a new valuable tool for biotechnological production of a potent anticancer lignan Justicidine B, Pharmacog. mag. Vol.9 (33), 39-44,

lonkov Todor, Sasheva Pavlina, lonkova Iliana, F. Bucar, D. Milanova, (2013) Model based Combined control of the bioprocess for production of C-glycosylflavones from *Linum thracicum* in bioreactor, Comptes rendus de l'Academie bulgare des Science, vol. 66, No 1, 139-146,

Momekov G., I. lonkova, P. Nedialkov, D. Zheleva-Dimitrova, I. Krasteva, G. Kitanov, St. Nikolov, S. Konstantinov, (2013), Overview of the oncopharmacological studies of plant-derived natural products conducted at the Faculty of Pharmacy (MU-Sofia), Pharmacia, vol 60, 1: 60-70

Sasheva Pavlina, Gergana Letkarska, Iliana lonkova, (2013) Biotechnological production of podophyllotoxin and podophyllotoxin-related lignans in cultures of *Linum thracicum* Degen, Compt. Rendus de l'Academie bulgare des Sciences, vol.66, 10: 1445-1450,

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lonkova Iliana, Aleksandar Shkondrov, Krasteva Iliana, Todor lonkov, (2013), Recent progress in phytochemistry, Pharmacology and biotechnology of *Astragalus* saponins, Phytochemistry Reviews (Springer), 13:343374, Phytochem Rev (2014) 13:343374

Zdraveva P., I. Pencheva, I. Krasteva, I. lonkova (2014) Development and Validation of HPLC Method for Quantitative Estimation of Saponarin in Endangered Species *Gypsophila trichotoma*, Int. J. of Pharm. Analysis, vol.39 (1):1181-1184

Ilieva Y, Zhelezova I, Atanasova T, Zaharieva M, Sasheva P, lonkova I, Konstantinov S., (2015) Cytotoxic effect of the biotechnologically derived justicidin B on human lymphoma cells, Biotechnology Letters (Elsevier), 36, 2177-2183

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Projects Work research experience abroad (DAAD, UNESCO, NATO, OAD, etc): Germany - University of Düsseldorf, Belgium - Free University of Brussels, Austria - University of Graz - 1987-1989, 1992, 1995, 1996, 1999, 2003, 2006, 2009.

Project management - director of International and national research projects:

1991 - 1993 Natural products of medicinal importance from plant cell and organ cultures of families Solanaceae and Fabaceae, financed by Kernforschungszentrum, Karlsruhe, Project N: X214.2, Germany

1996 - Research Project Use of DNA as affinity probe for detection and isolation of biological substances, financed by Konferenz der Deutschen Akademien der Wissenschaften, Mainz, Aktenzeichen: 960.4-129 Universität Düsseldorf, Germany

1996 - Project N: HTECH.CRG 960358/1232(96)JARC-411 Extraction of toxic metals from contaminated soils by tolerant *Datura stramonium* plants, financed by Scientific and Environmental

Affairs Division of NATO, Belgium

1995 - 1996 Project BG/1 Modern Teaching and training in pharmacognosy and chemotherapeutic pharmacology for under and postgraduate students (contemporary teaching methodologies), financed by CEEPUS, Wien, Austria

1993 - Project N: MU 11/Med Molecular-biologic approach for discovery of plant immunostimulating and anticancer drugs, financed by Ministry of Education Technology and Science, Bulgaria

1999 Project VRP-L-8 Model systems for ecotoxicological evaluation of heavy metals in plants financed by Ministry of Education Technology and Science, Bulgaria

1994 - 1996 Project N: L 409 Use of DNA as affinity probe for detection and isolation of biological substances, financed by Ministry of Education Technology and Science, Bulgaria

2007-2009 Project : TK-L-1607/06 "Production of anticancer lignans in in vitro cultures of Bulgarian Linum species" financed by Ministry of Education Technology and Science, Bulgaria

Memberships

Membership of international professional societies: American Society of Pharmacognosy; International Society for Medicinal Plant Research; AMAPSEEC; Bulgarian Union of Pharmacy

Member of Editorial Board of International scientific journals: Pharmacognosy Magazine (Shivananda B. G. ed); Pharmacognosy Review (Shivananda B. G. ed); Pharmacy (Sofia)

Member of Expert commission within the Sixth Framework Program of the European Union - SEE-ERA.NET - Invited reviewer of the projects in the field of Biotechnology and Phytochemistry

Invited reviewer of scientific projects at international level (EU)

Invited reviewer in international and national scientific journals: J. of Botany (Belgium); J. of Ethnopharmacology-Elsevier, (Verpoorte Ed.); J. of Biochemistry and Molecular Biology (Z. Dong Ed.); Pharmacognosy Magazine (Shivananda B. G. ed); J. of Biotech&Bioeng.; J. Pharmacy etc.

Member of National Pharmacopoeia Committee, Herbal Drugs

Member of Commission Herbal Drugs, Bulgarian Drug Agency

Other Relevant Information

HONOURS AND AWARDS

2006 - Badge of Honour Signum Laudis pro scientiae meritis for the best research work in the field of Pharmacy

2011 - Panacea-gold for special contributions to the realization of teaching, research and expert work in medical and biological field