

## **Hector Rodolfo JULIANI, Ph.D.**

New Use Agriculture and Natural Plant Products Program (NUANPP)  
and  
PARTNERSHIP FOR SUSTAINABLE ECONOMIC GROWTH IN AFRICA THROUGH  
NATURAL PRODUCTS DEVELOPMENT (ASNAPP/PFID) Program.  
Rutgers, The State University of New Jersey,  
59 Dudley Road, Department of Plant Biology and Pathology, Foran Hall,  
New Brunswick 08901 - NJ - USA  
Tel: 732-932-9711 ext 375 - Fax: 732-932-9441  
Web: [www.nuanpp.org](http://www.nuanpp.org) - [www.asnapp.org](http://www.asnapp.org) - [www.pfidnp.org](http://www.pfidnp.org)  
E-mail: [hjuliani@rci.rutgers.edu](mailto:hjuliani@rci.rutgers.edu),  
April 24, 2006

### **1. Education**

1998 - Ph.D. Biological Sciences

Facultad de Ciencias Exactas Físicas y Naturales, Universidad Nacional de Córdoba  
Argentina (School of Maths, Physics and Natural Sciences, National University of  
Córdoba).

Doctoral Thesis Title “Domestication of *Lippia junelliana* and regulation of essential oil  
accumulation”.

1993 - Biologist, Facultad de Ciencias Exactas Físicas y Naturales, Universidad Nacional de  
Córdoba, Argentina.

### **2. Professional Experience/Employment History**

Field of Specialization:

- A). Quality assurance and quality control of essential oils, aromatic and medicinal plants and other botanicals extracted from plants;
- B). Chemistry and biological activity of essential oils;
- C). Physiological aspects of the accumulation of essential oils and other secondary metabolites in plants; and
- E). Domestication and tissue culture of aromatic and medicinal plants.

2004- current: Research Associate. Co-Principal Investigator in the international development program "PARTNERSHIP FOR SUSTAINABLE ECONOMIC GROWTH IN AFRICA THROUGH NATURAL PRODUCTS DEVELOPMENT". A program funded by the United States Agency for International Development (USAID) for the Partnership for Food Industry Development (PFID) program in Natural Products. Leading the comprehensive QA/QC approach to increase market access for Natural Plant Products from Africa (Ghana, Madagascar, Senegal, Rwanda, South Africa and Zambia). Other research projects include: I. Chemical analysis, quality control and bioactivity of essential oils, herbs and medicinal plants for possible use in human health. II. Chemical characterization of essential oils from Argentinean aromatic plants.

2003 - 2004. Research Associate. Director of Quality control and biological activity of botanicals from Ghana, Rwanda, Zambia, South Africa and Madagascar for Agribusiness in Sustainable Natural African Plant Products program (ASNAPP-USA).

2000 - 2003. Postdoctoral Associate. Advisor: Dr. James E. Simon, Rutgers University

1998-2000 - Postdoctoral fellowship for research and graduate training. "Domestication of different lines of *Lippia junelliana* and regulation of the essential oil accumulation". CONICET (National Council of Scientific and Technological Research) Argentina.

1998 - 2001 - Senior Teaching Assistant in Plant Physiology. Universidad Nacional de La Rioja (National University of La Rioja) Argentina.

1993 - 1997 - Science and Technology Fellow, Universidad Nacional de Córdoba (National University of Córdoba), Argentina.

1993-1995 - Senior Teaching Assistant in Plant Physiology. Universidad Nacional de Córdoba, Argentina.

1991 - Junior Teaching Assistance on Plant Physiology and Biological Chemistry. Universidad Nacional de Córdoba, Argentina.

### **3. Research Publications**

#### **3.1. Refereed papers**

2006 - Juliani H.R., J. Kapteyn, D. Jones, A. R. Koroch, M. Wang, D. Charles, and J.E. Simon. Applications Using Near Infrared Spectroscopy in Quality Control and Adulteration of African essential oils. *Phytochemical Analysis* 17:121-128.

2005. Biurrun, F., H. Juliani (Jr), M.L. Lopez and J.A. Zygadlo. Essential oil composition of *Baccharis tenella* Hook & Arn. *Journal of Essential Oil Research* 17 (2): 122-123

2004. Juliani, H.R., J.A Zygadlo , R. Scrivanti, E. de La Sota, and J. E. Simon. The essential oil of *Anemia tomentosa* (Sav.) var. *anthriscifolia* (Schrad.) Flavour and Fragrance Journal. *Flavour Fragr. J.* 2004; 19: 541–543.

2004. Koroch, A., H. Juliani, J. Bischoff, E. Lewis, G. Bills, J. Simon, and J. White, Jr. Examination of plant biotrophy in the scale insect parasitizing fungus *Dussiella tuberiformis*. *Symbiosis* 37 (1-3): 267-280.

2003. Koroch, A., J. Kapteyn, H.R. Juliani, and J.E. Simon. In vitro regeneration of *Echinacea pallida* from leaf explants. *In Vitro Plant Cellular and Developmental Biology* 39:415-418.

2003. Park, C.H., H.R. Juliani, H.W. Park, H.S. Yu and J.E. Simon. Comparison of essential oil composition between *Angelica gigas* and *Angelica acutiloba*. *Korean J. Plant Res.* 6(3) 183-187.

2002. Juliani, H.R., F. Biurrun, A.R. Koroch, M.M. Oliva, M. S. Demo, V. S Trippi and J. A. Zygadlo. Chemical Constituents and Antimicrobial Activity of the Essential Oil of *Lantana xenica* Mold. *Planta Medica* 68: 756-762.

2002. Koroch, A., H.R. Juliani, J. Kapteyn and J.E. Simon. In vitro regeneration of *Echinacea purpurea* from leaf explants. *Plant Cell Tissue and Organ Culture*. *Plant Cell, Tissue and Organ Culture* 69: 79-83.

2002. Juliani, H.R. (Jr.), A.R. Koroch, H.R. Juliani, V.S. Trippi and J.A. Zygadlo. Intraspecific variation in leaflets of *Lippia junelliana* (Mold.) Tronc. *Biochemical Systematics and Ecology* 30: 163 –170.

2002. Simon J.E., E. Jefthas, P. Longenhaven, M. Smith, E. Renaud, H.R. Juliani, M. Wang, N. Zimba, D. Acquaye, C. Park, I. Raskin and P. Tannous. Challenges and Tribulations in the Commercialization of New Crops: Aromatic and Medicinal Plants. *Korean J. Medicinal Crop Sci.* 10(4): 303-313.

2000. Mwangi, J.W., G.N. Thoithi, H.R. Juliani Jr., and J.A. Zygadlo. Composition of the essential oil of *Microglossa pyrhopappa* (A. Rich) Agnew Var. *Pyrropappa* from Kenya. *Journal of Essential Oil Research* 13(4): 229-230.

2000. Juliani, H.R. Jr., F. Biurrun, A.R. Koroch, H.R. Juliani and J. A. Zygadlo. Chemical constituents of the essential oil of *Lippia laxibracteata* Herzog (Verbenaceae). *Planta Medica* 66: 567-568.

2000. Zygadlo, J. A. and H. R. Juliani Jr. Bioactivity of essential oil components. Minireview: *Current Topics in Phytochemistry* 3: 203-214. 342 refs.

1999. Juliani, H.R. Jr., A.R. Koroch, H.R. Juliani and V.S. Trippi. Micropropagation of *Lippia junelliana* (Mold.) Tronc. *Plant Cell, Tissue and Organ Culture* 59: 175-179.

1999. Koroch, A.R., H.R. Juliani Jr., V.S. Trippi and H.R. Juliani. Chemical constituents of the volatile oil of *Hedeoma multiflorum* Benth. (Lamiaceae). *Journal of Essential Oil Research* 11:165-166.

1998. Chebel, A. del V., A.R. Koroch, H.R. Juliani Jr., H.R. Juliani and V.S. Trippi. Micropropagation of *Minthostachys mollis* (H.B.K) Grieseb. and essential oil composition of clonally propagated plants. *In Vitro Plant Cellular and Developmental Biology* 34(3):249-251.

1998. Juliani, H.R. Jr., A.R. Koroch, H.R. Juliani and V.S. Trippi. Variación estacional de la acumulación de aceites esenciales en *Lippia junelliana*. *Anales de la Sociedad Química Argentina* 86(3/6): 193-196.

1997. Koroch, A.R., H.R. Juliani Jr., H.R. Juliani and V.S. Trippi. Micropropagation and acclimatization of *Hedeoma multiflorum* Benth. *Plant Cell, Tissue and Organ Culture* 48:(3): 213-217.

1994. Juliani H. R. Jr., H.R. Juliani, V. S. Trippi and L. Ariza-Espinar. Essential oils from various plant parts of *Lippia junelliana*. *Anales de la Asociación Química Argentina* 82(1): 53-55.

### **3.2. Published Papers in Proceedings from Scientific Presentations (Non-‘refereed’):**

2004. Juliani, H.R., A.R. Koroch, J.E. Simon, F.N. Biurrun, V. Castellano and J.A. Zygodlo. Essential oils from Argentinean Aromatic Plants. *Acta Horticulturae (ISHS)* 629:491-498.

2004. Juliani, H.R., J.E. Simon, M.M.R. Ramboatiana, O. Behra, A. Garvey and I. Raskin. Malagasy Aromatic Plants: Essentials, Antioxidant and Antimicrobial Activities. *Acta Horticulturae*. 629: 77-81.

2002. Juliani, H.R. and J.E. Simon. Antioxidant Activity of Basil (*Ocimum* spp.). In: Janick J. (ed). *New Crops and New Uses: Strength in Diversity*. ASHS Press. Virginia. USA. pp 575-579. (ISBN 0-970756-5-5).

2002. Tadmor Y., E. Jefthas, J. Goliath, M. Smith, P. Langenhoven, D. Acquaye, H.R. Juliani, W. Letchamo, E. Renaud, N. Zimba, I. Raskin, J. Brown and J.E. Simon. Quality assurance and quality control for African Natural Plants Products from the ground up. In: Janick J. (ed). *New Crops and New Uses: Strength in Diversity*. ASHS Press. Virginia. USA. pp 93-99. (ISBN 0-970756-5-5).

2002. Koroch, A., J. Kapteyn, H.R. Juliani and J.E. Simon. In Vitro Regeneration and *Agrobacterium* Transformation of *Echinacea purpurea* Leaf Explants. In: Janick J. (ed). *New Crops and New Uses: Strength in Diversity*. ASHS Press. Virginia. USA pp 522-526. (ISBN 0-970756-5-5).

### **3.3 Book Chapters**

2005 - Juliani, H. R., M. Wang, J. Asante-Dartey, D. Acquaye, H. Moharram, A. R. Koroch and J. E. Simon. 2005. Bioactive components and pharmacological properties of *Lippia multiflora*. In: Wang, M., S. Shengmin, L.S. Hwang and C.T. Ho (eds.). *Herbs: Challenges in Chemistry and Biology*. American Chemical Society Symposium Series 925. American Chemical Society. Washington DC. USA. Pp 126-142.

2005 - Moharram H., J. Ray, S. Ozbas, H. Juliani and J. Simon;. 2005. *Shea Butter: Chemistry, Quality and New Market Potentials*"; In: Wang, M., S. Shengmin, L.S. Hwang and C.T. Ho (eds.). *Challenges in Chemistry and Biology of Herbal Research*. American Chemical Society Symposium Series 925. American Chemical Society. Washington DC. USA. Pp 326-340.

2005. Koroch, A.R., H.R. Juliani and J.E. Simon. *Biotechnology: Tissue Culture and Genetic Transformation for the Improvement of Aroma in Plants of the Lamiaceae*. In: *Processing, Analysis and Application of Essential Oils*. G. Buchbauer and Dr. L. Jirovetz (eds). HAR KRISHAN BHALLA & SONS " Dehradun, INDIA. pp 275 - 291. ISBN 81-7525-595-1.

2005. Wang M., R. Juliani, J. E. Simon, A. Ekanem, C.P. Liang and C.T. Ho. Honeybush Tea: Chemistry, Analysis and Pharmacological Analyses. p. 118-142. In: F. Shahidi and C.T. Ho. (eds). Phenolic Compounds in Foods and Natural Health Products. ACS Symposium Series 909. American Chemical Society. Washington DC. USA.

2003. Zygadlo, J.A. and H.R. Juliani. Study of essential oil composition of aromatic plants from Argentina. In: Majundar, D.K., Govil, J.N. and Singh V.K. Recent Progress in Medicinal Plants. Phytochemistry and Pharmacology II. Vol 8: 273-291. Stadium Press LLC. Texas. USA.

### **3.4. Industry Journals/Trade Magazines:**

2005. Juliani, H.R., O. Behra, H. Moharram, L. Ranarivelo, B. Ralijerson, M. Andriantsiferana, N. Ranjatoson, J. Rasoarahona, P. Ramanoelina, M. Wang and J.E. Simon. Searching for the Real Ravensara (*Ravensara aromatica* Sonn.) Essential Oil. A case study for “NATIORA” — the Malagasy natural product label. Perfumer and Flavorist 30: 60-65.

### **Technical reports, supporting research, development and Extension**

More than 50 natural plant products technical reports submitted to US companies, and private/public sector in African countries (Madagascar, Ghana, Senegal, South Africa, Rwanda, Zambia)

### **Grants**

Competitive Grants:

2004 – 2009. Simon, J.E. (PI), D Acquaye (Co-PI), R Govindasamy (Co-PI) and H. Rodolfo Juliani (Co-PI). PARTNERSHIP FOR SUSTAINABLE ECONOMIC GROWTH IN AFRICA THROUGH NATURAL PRODUCTS DEVELOPMENT. A grant awarded by the United States Agency for International Development for the Partnership for Food Industry Development (PFID) program in Natural Products. September 30, 2004 - September 30, 2009.

Industry Research Services: Additional External Funding to support our natural products research from NGO's, Government and for-profit international development and industry:

2003-2004 - Pierre Tannous, H. Rodolfo Juliani, Mingfu Wang and Jim Simon. Water balance in Hydrosol Production Via Steam Distillation: Case Study using Lavandin (*Lavandula x intermedia*) and Mint (*Mentha* sp). Industry research services provided to Organic Consumer Association.

### **Additional Grants Developed in Support of our International Partners:**

2005. Bauman, S., J.P. Ndagijimana and N. Hitimana (World Relief, WR, and ASNAPP-Rwanda, respectively). Development of the Essential Oil Industry in Rwanda for Economic Growth and Diversification. Proposal submitted by World Relief and Agribusiness in Sustainable Natural African Plant Products (ASNAPP) to the Global Development Alliance (GDA) of the USAID. 2005-2007. Simon, J.E. and R. Juliani co-wrote this proposal and Rutgers (as part of our PFID/NP and ASNAPP project) is tasked with the quality control work within this project.

## **Invited Presentations**

Rodolfo Juliani and Steven Foster, Rutgers University, and the Natural Products PFID, and H.Y. Johnson, Lincoln University. Strengthening Post-Harvest Handling/Infrastructure to Expand the Export of Herbs and Medicinal Crops from Upper Egypt. Regional Consultation on Linking Farmers to Markets. Lessons learned and successful practices. January 29 – February 2, 2006, Cairo, Egypt

## **Overseas International Experience**

2005 - Ghana and Rwanda (June 17-July 1, 2005). Implementation of a comprehensive Quality Assurance and Quality Control program for essential oils and dry botanicals. Capacity building and technology transfer on QA/QC.

2005 - Zambia (August 23-September 2, 2005).

2004 - Rwanda and Zambia: Natural Products Assessments: Development of Good Agricultural Practices and Good Manufacturing Practices for essential oils. Evaluate in country capacity for Quality control of essential oils and transfer technology on Quality Assurance and Control (QA/QC).

## **Awards**

2001 - Juliani H.R. and JE Simon. 2001. Antioxidant Activity of Basil (*Ocimum* spp.) awarded best student non-industrial poster at the 5th Annual New Crops and New Uses Symposium in Atlanta Georgia, November 2001.

## **Teaching experience in National/International Training Programs**

2006 Co-organizer of the mini symposium "Southern African Essential Oils: From Germplasm to Oil Distillation, Extraction and Quality Control" 27 February to 1 March 2006, Protea Hotel. Stellenbosch, South Africa.

2005 - Zambia (November 17-19, 2005). Participation as lecturer in the Making Quality Matter workshop organized by ASNAPP-Zambia. Intercontinental Hotel, Lusaka, Zambia.

2005 – Collaborating Instructor in the Botanical Standardization of Medicinal Plants Workshop (October 21-22). Botanical Center for Age Related Diseases. Rutgers University. Participants: 20 US student/professionals.

2005 - Ghana (June 15-16, 2005). Participation as lecturer in the Making Quality Matter workshop organized by ASNAPP-Ghana.

2004 Collaborating Instructor in the Specialized Training Program in Quality control aspects of Essential Oils. May 20, Rutgers University. Participants: 20 US student/professionals dealing with essential oil industry.

2004 Collaborating Instructor in the International Training Program in Essential oils and Medicinal Plants. Rutgers University. July 26-August 2. Participants: 10 International Professionals (Russia and US).

2003 Collaborating Instructor in the Specialized Training Program in Natural Plant Products. Rutgers University. August 12-16. Participants: 5 International students.

2001 Collaborating instructor in the International Training Program: Essential oils, Advanced Studies. Rutgers University August 6-16. Participants: 30 international students (from many parts of the world).

2001 Collaborating instructor in the Cochran Training Program for African Scientist, Rutgers University, March 1-6. Participants: 4 African Scientist.

### **Training/technical assistance provided to students**

Training and technical assistance provided to more than 10 graduate, undergraduate and highschool students.

Technical assistance provided to more than 10 Post-Docs/Visiting Scientists at Rutgers University:

### **Participation in trade shows/workshops in support of our international development work in Natural Products:**

2001 - September. ExpoEast. Washington DC (as ASNAPP exhibitor).

2002 – October. ExpoEast. Washington DC (as ASNAPP exhibitor).

2003 - September. ExpoEast. Washington DC as (as ASNAPP exhibitor).

2003 - Fancy Food Show. New York City. July 5-8. (as ASNAPP exhibitor)\*

\*(Our rooibos product from South Africa was recognized as a Pick-of-the Aisle by Gourmet Retailer for its high quality).

2004 - September. ExpoEast. Washington DC as (as ASNAPP exhibitor).

2005- September. ExpoEast. Washington DC as (as ASNAPP exhibitor).

### **Memberships and affiliations**

Affiliated with the Food Policy Institute (Rutgers University).

**Language Capabilities:** English, Portuguese and Spanish.