

# Andrea Aliboni, Ph.D.

## Education

- 2010** Ph.D. in Analytical Chemistry, Università di Pisa (Pisa, Italy), dissertation title: “The allergens of propolis: chemical characterization and removal processes”, advisors: Prof. Maria Perla Colombini (Università di Pisa) and Dr. Armando D’Andrea (ENEA CRE Casaccia, Roma, Italy). Dissertation available at <http://etd.adm.unipi.it/theses/available/etd-01242010-125815/>
- 1994** M.S. in Chemistry, Università di Perugia (Perugia, Italy), dissertation title: “Synthesis, characterization and photochemical properties of the pentacyano (pyridine) chromate (III) complex ion”, advisors: Prof. Edoardo Zinato and Prof. Pietro Ricciari (Università di Perugia)

## Experience

**2000-present** Researcher at ENEA (the Italian Government research institution for technological innovation, [www.enea.it](http://www.enea.it)), working in the analytical chemistry of natural products and process chemistry of natural matrixes. The first three years of work have been supervised by Dr. Armando D’Andrea.

- 2015-2017 screening by HPLC-HR mass spectrometry of primary and secondary metabolites in durum wheat and pistachio for the Idempreet PON project funded by Italian Secretary for Research;
- 2012-2014 analytical support to a bioprocess dedicated to the removal of hydrogen sulphide from biogas;
- 2010-2011 reorganization of safety and laboratory procedures of the facility belonging to the ENEA microbial fermentation operating unit; setting of GC-MS and HPLC protocols for the characterization of microbial fermentation metabolites;
- 2010-2011 GC-MS and HPLC characterization of propolis specimens from Western United States;
- 2009 characterization of a new process aimed at the removal of allergenic esters from propolis, based on the partition between propolisethanolic solutions and a lipidic phase made up of balanced amounts of corn oil and wax (for Ph.D. research);
- 2008 characterization of a new process aimed at the removal of allergenic esters from propolis, based on the treatment of solid propolis with supercritical carbon dioxide (for Ph.D. research);
- 2007 devised a new GC-MS analytical method for the quantitative determination of two allergenic esters in propolis, benzyl salicylate and benzyl cinnamate (for Ph.D. research);
- 2006-2007 HPLC characterization of sulphurated active products (sulphoraphane) in *Brassica* species;
- 2005-2006 HPLC characterization of the byproducts of the treatment of *Azadirachta indica* seeds, to assess the content of the active principles: azadirachtin, salannin, nimbin. The work was carried out for the BLUETONGUE-BIOCONTROL project, aimed at the valorization of agroindustrial waste for veterinary usage, funded by an Italian local authority;

- 2002-2006 HPLC characterization of artichoke canning waste, to assess their content in inulin. This activity was carried out for an Italian Government funded project aimed at the valorization of food waste (BRIMET project);
- 2002-2006 characterization of two processes aimed at the extraction of nutraceuticals (carotenoids) from wastes coming from the agroindustry (cabbage residues), one using ASE, the other using supercritical carbon dioxide. This activity was carried out for an Italian Government funded project aimed at the valorization of food waste (INAGRIMED project);
- 2003 characterization of a process aimed at the production of oils rich in  $\alpha$ -tocopherol from wine industry wastes (grapeseeds) using supercritical carbon dioxide;
- 2001-2003 characterization of a process aimed at the dehydration of osteological remains coming from submerged sites using supercritical carbon dioxide with methanol as cosolvent. The work was carried out for CNR funded project, aimed at the research of innovative methods for the consolidation of remains coming from submerged archaeological sites;
- 2000-2002 HPLC characterization of the supercritical extracts of *Azadirachta indica* seeds, to assess the content of the active principles: azadirachtin, salannin, nimbin. The work was carried out for the EVIAZ project, aimed at the valorization of innovative extracts for veterinary usage, funded by an Italian local authority.

**1997-1999** Two stages at ISRIM, Institute for research on advanced materials for the new technologies, Terni (Italy):

- research on polymer processing and recycling;
- support to polymer processing activity.

**1996-1997** “Specialization school in applied molecular sciences” Università di Perugia (Perugia, Italy):

- research on the synthesis of new anionic complexes of chrome (III);
- classroom general chemistry exercises for freshmen of natural sciences.

### **Mentoring**

- 2013-2014 Co-tutoring with Dott.ssa De Luca of Ph.D. student Dott.ssa Luigia Lona that is carrying out a work on a bioprocess aimed at the removal of H<sub>2</sub>S from biogas;
- 2006 undergraduate student from Pharmacy (Università La Sapienza, Roma, Italy) for her M.S. research on the veterinary usage of the byproducts coming from the treatment of *Azadirachta indica* seeds;
- 2004 undergraduate student from Agronomy (Università della Tuscia, Viterbo, Italy) for her B.S. research, HPLC characterization of cabbage waste extracts for the determination of their carotenoid content;
- 2002-2003 undergraduate student from Chemical Engineering (Università La Sapienza, Roma, Italy) for his M.S. research, characterization of a process aimed at the production of oils rich in  $\alpha$ -tocopherol from wine industry wastes (grapeseeds) using supercritical carbon dioxide.

## Foreign languages

- Italian mother tongue;
- English, fluent;
- German, basic.

## Other skills and activities

- Advanced user of HPLC apparatus and mass spectrometry detection;
- knowledge of organic analytical laboratory practices;
- peer review activity for Journal of Supercritical Fluids, journal of Saudi Arabian Society (Elsevier) and Journal of Food and Agriculture Chemistry (ACS);
- knowledge of mathematical software for data elaboration.

## Memberships

- 2006-present, SCI (Italian Society of Chemistry), division of Analytical Chemistry;
- 2008-present, ACS (American Chemical Society), division of Analytical Chemistry.

## Publications

Ricceri P., Zinato E., **Aliboni A.**, Pentacyano (pyridine) chromate(III): synthesis, characterization and photochemistry, *Inorg. Chem.*, **1997**, 36 (11), 2279-86

Bravi M., Spinoglio F., Verdone N., Adami M., **Aliboni A.**, D'andrea A., De Santis A., Ferri D., Improving the extraction of  $\alpha$ -tocopherol-enriched oil from grape seeds by supercritical CO<sub>2</sub>. Optimisation of the extraction conditions, *Journal of Food Engineering*, **2007**, 78 (2), 488-93

Sivakumar G., **Aliboni A.**, Bacchetta L., HPLC screening of anti-cancer sulforaphane from important European *Brassica* species, *Food Chem.*, **2007**, 104, 1761-64

Sivakumar G., **Aliboni A.**, Antonini A., Bacchetta L., Bioactive sulforaphane from in vitro propagated brassica seedlings, *Eng. Life Sci.*, **2007**, 7 (3), 275-77

D'Andrea A., **Aliboni A.**, De Santis A., Mariani S., Ritieni A., Gorgoglione D., Supercritical CO<sub>2</sub> extraction of rotenone from *Derris elliptica* (Wallich) Benth.: optimization of extraction conditions, *J. Supercrit. Fluids*, **2007**, 42, 330-33

Nicoletti M., Serafini M., **Aliboni A.**, D'Andrea A., Mariani S., Toxic effects of neem cake extracts on *Aedes albopictus* (Skuse) larvae, *Parasitol. Res.*, **2010**, 107, 89-94. DOI: 10.1007/s00436-010-1838-6.

**Aliboni A.**, D'Andrea A., Massanisso P., Propolis Specimens from Different Locations of Central Italy- Chemical Profiling and GC-MS Quantitative Analysis of the Allergenic Esters Benzyl Cinnamate and Benzyl Salicylate, *J. Agric. Food Chem.*, **2011**, 59, 282-288, DOI: 10.1021/jf1034866

**Aliboni A.**, D'Andrea A., Massanisso P., Treatment of propolis specimens from Central Italy to yield a product with a lower charge of allergenic species, *Sep. Pur. Technol.*, **2011**, 82, 71-75. DOI: 10.1016/j.seppur.2011.08.022

**Aliboni A.**, Propolis from Northern California and Oregon: chemical composition, botanical origin and content of some allergenic esters, *Z. Naturforsch.*, **2014**, 69c, 10-20. DOI: 10.5560/ZNC.2013-0114

**Aliboni A.**, Lona L., Felici C., Corsaro N., Izzo G., De Luca E., Analytical Protocols for the Determination of Sulphur Compounds Characteristic of the Metabolism of *Chlorobium limicola*, *Analytical Chemistry Research*, **2015**, 5, 9-13. <http://dx.doi.org/10.1016/j.ancr.2015.05.002>

## **Presentations**

**Aliboni A.**, Cerilli E., D'Andrea A., Mariani S., Tagliacozzo A., Supercritical drying process in conservation of waterlogged osteological remains, in: *Proceedings of the 6<sup>th</sup> International Symposium on Supercritical Fluids*, **2003**, tome 3, 2019-28

Adami M., **Aliboni A.**, Bravi M., D'Andrea A., De Santis A., Ferri D., Spinoglio F., Verdone N., Extraction of oil enriched in  $\alpha$ -tocopherol from grape seeds (*Vitis Vinifera*) using supercritical carbon dioxide, in: *7<sup>th</sup> Italian Conference on Supercritical Fluids and Their Applications*, **2004**, number N23 on the Compact Disc of the proceedings

Bacchetta L., **Aliboni A.**, Bernardini C.. Measurement of tocopherol leaf contents in hazelnut plants (*Corylus avellana*) and optimization of in vitro propagation, *Atti del Convegno nazionale della Società Orticola Italiana*, **2004**, Castel dell'Ovo Napoli (in Italian)

D'Andrea A., **Aliboni A.**, De Santis A., Mariani S., Ritieni A., Gorgoglione D., "Liquid and supercritical CO<sub>2</sub> extraction of Pyrethrins from *Chrysanthemum cinerariaefolium* (Trev.) Bocc.: yield and purity in function of extraction conditions. Kinetic study of extraction.", presented at the "Eighth Conference on Supercritical Fluids and Their Applications", Ischia (Italy), May 28-31, **2006**, indexed as E21 in the CD of the official acts

D'Andrea A., **Aliboni A.**, De Santis A., Mariani S., Ritieni A., Gorgoglione D., "Supercritical CO<sub>2</sub> extraction of rotenone from *Derris elliptica* (Wallich) Benth.: optimization of extraction conditions and kinetic of extraction.", presented at the "Eighth Conference on Supercritical Fluids and Their Applications", Ischia (Italy), May 28 -31, **2006**, indexed as E20 in the CD of the official acts

**Aliboni A.**, Colombini M.P., D'Andrea A., "SPE-HPLC procedure for the determination of allergenic esters in propolis", presented as a poster at the "HPLC 2007" congress, coded as P19.50 in ADVANCES IN METHODOLOGY / Natural Products and Food session, Gandes (Belgium), June 17-21 **2007**

**Our group's poster was chosen as one of the Congress's top 50 at this international Symposium that included over 750 participants.**

**Aliboni A.**, Massanisso P., D'Andrea A., "Extraction and HPLC analysis of low polarity esters in propolis", presented as poster at the "HPLC 2008" congress, Baltimore (USA) May 10-16 **2008**

**Aliboni A.**, D'Andrea A., De Santis A., "Hot water extraction of inulin from Artichoke (*Cynarascolumus*) byproducts", presented at XI<sup>o</sup> Congress on Carbohydrate Chemistry, Certosa di Pontignano (PI), June 22-26 **2008**

**Aliboni A.**, D'Andrea A., Massanisso P., "A novel process for the removal of two allergenic esters from propolis", poster presented at Green Process Engineering (GPE-EPIC 2009) Symposium, Venezia (Italy), June **2009**

**Aliboni A.**, D'Andrea A., "HPLC analysis of propolis following a treatment aimed at the removal of some allergenic esters", presented as poster at the "HPLC 2009" congress, Dresden (Germany), June 28 10- July 2 **2009**

**Aliboni A.**, D'Andrea A., "Treatment of propolis with supercritical carbon dioxide to remove some allergenic esters", poster presented at the 239<sup>th</sup> ACS meeting, San Francisco, CA, March **2010**

**Aliboni A.**, "GC-MS characterization of propolis specimen from Western USA", poster presented at 2<sup>nd</sup> MS Food Day, organized by Italian Chemical Society, Trieste, Italy, October 19-21 **2011**

**Aliboni A.**, "Gas chromatographic analysis of headspace volatiles of California and Oregon propolis", poster presented at 67<sup>th</sup> ACS Northwest Regional Meeting, Boise, ID, June **2012**

**Aliboni A.**, "Chromatographic characterization of propolis specimens from California and Oregon", poster presented at XXIV congress of the Analytical Chemistry Division of the Italian Chemical Society, SestriLevante (GE), September 15-19 **2013**

**Aliboni A.**, Lona L., De Luca E., Felici C., Izzo G., "Analisi HPLC dello zolfo elementare prodotto da *C. limicola* in un bioprocesso mirato alla rimozione di H<sub>2</sub>S nel biogas" (HPLC analysis of elemental sulfur produced by *C. limicola* in a bioprocess aimed at the removal of H<sub>2</sub>S in biogas) poster presented at XXV congress of the Italian Chemical Society, Cosenza, September 7-12 **2014**