

Elisa Brasili

📍 Laboratory of Plant Cell Biotechnology
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WORK AND ACCADEMIC EXPERIENCE

From 28/02/2018 to present

Researcher (RTDA)

Department of Environmental Sciences, Sapienza University of Rome

01/08/2016 - 31/01/2018

FAPESP Post-doctoral fellowship

Food Research Center (FoRC), CEPID-FAPESP (Research Innovation and Dissemination Centers São Paulo Research Foundation), São Paulo, Brazil.

Department of Food and Experimental Nutrition, University of São Paulo, Brazil.

Project Title: *Metabolomic approach to evaluate the effect of orange juice intake in healthy volunteers*

01/03/2015-31/07/2016

CNPq Post-doctoral fellowship

National Council for Scientific and Technological Development (CNPq), Brazil.

Department of Food and Experimental Nutrition, University of São Paulo, Brazil.

Project Title: *Comparative study of Citrus sinensis (L.) Osbeck cv. 'Cara Cara' and cv. 'Bahia' Juices.*

15/04/2010-31/12/11

Co.Co.Co. Contract

Ex-IRAN (Istituto Nazionale di Ricerca per gli alimenti e la nutrizione), Roma, Italy

EDUCATION AND TRAINING

01/03/2014-30/09/2014

Sapienza *post-lauream* fellowship “Perfezionamento all'estero”

UNIVALI – Universidade do Vale do Itajai (Brazil)

Work activities:

- Characterization of methanolic extracts of *H. perforatum*, *H.tomentosum* and *H.tetrapterum*
- Characterization of methanolic extracts of *Campomanesia reitziana* (Gabirola)

01/11/2011-21/02/2014

Doctoral Degree in Botanical Science

Department of Environmental Sciences, Sapienza University of Rome

Title of PhD thesis: Non-targeted metabolomics approach to evaluate the effect of biomass growth and chitosan elicitation on primary and secondary metabolism in *Hypericum perforatum in vitro* roots

18/12/2009 **Master Degree in Applied Cellular Biology**

Sapienza University of Rome

Title of thesis: "Evaluation of immunological and metabolomic changes induced by aging in mice: study of the effect of probiotics".

The thesis work was carried out at ex- INRAN in collaboration with the Department of Chemistry at the University Sapienza of Rome.

 24/02/2007 **Degree in Biological Science**

Sapienza University of Rome

Title of thesis: "Effect of probiotics on T regulatory cells in a mouse model with experimentally induced colitis".

The thesis work was carried out at ex- INRAN in collaboration with the Department of Chemistry at the University Sapienza of Rome.

RESEARCH RELATED SKILLS
Keywords

 Plant bioactive compounds
In vitro root cultures
¹H-NMR-based metabolomics
 GC-MS-based metabolomics
 Multivariate statistical models

 Metabolomics: GC-MS spectrometry and ¹H-NMR spectroscopy based approach to investigate biological fluids and plant metabolism;

Study of plant metabolism in response to biotic stress;

Multivariate analysis: statistical models, data mining and biological interpretation;

 Extraction techniques from biological matrices;
 Plant cell, tissue and organ cultures;
 Histological and histochemical analysis of plant tissues;
 Flow cytometry

ACCADEMIC RESEARCH

Research Lines

 Metabolomics approaches to evaluate the effect of biotic stresses on primary and secondary metabolism of *Hypericum perforatum in vitro* roots

Characterization of plant bioactive compounds

Metabolomics based approaches

Strategies for ex situ conservation of plants

**Scientific Projects
 (Grants as Investigator)**

 2015-2017. METABORANGE Project. Metabolomic approach to evaluate the effect of orange juice intake in healthy volunteers. Comparative study of *Citrus sinensis* (L.) Osbeck cv. 'Cara Cara' and cv. 'Bahia' Juices. (Clinical Trial NCT02685124). Funded by FAPESP and CNPq. Principal Investigator: Prof. Franco Maria Lajolo.

2009-2012. ALIETA Project (Functional foods for Advanced Age). Optimization and promotion of Italian products to improve the quality of life of older people. WP1 in research project entitled "Qualità alimentare e funzionale (QUALIFU)". Funded by "Ministero per le Politiche Agricole, Alimentari e Forestali" (DM 2087/7303/09 del 28/01/2009). Principal Investigator: Dott. Elena Mengheri

- Courses**
- II Workshop on Metabolomics, 31/08-02/09/**2016**, National Laboratory of Science and Technology of Bioethanol (CTBE). Campinas, SP, Brasil.
- Agilent Training (R3900A): GCMS Operation with MassHunter Data Analysis. 12-15 September **2016**, Agilent Technologies, São Paulo, Brasil.
- 1° Scuola di Metodologie Chimiche: Moderne Metodologie Chimico-Fisiche per le nuove Frontiere della Chimica. 22-26/02/**2010**. Istituto di Metodologie Chimiche, Consiglio Nazionale delle Ricerche (CNR)

- Society membership**
- Subscription at "Società Botanica Italiana" (SBI) onlus from 2017
- Subscription at "Ordine Nazionale dei Biologi" from 18/04/2013 (AA_068490)

TEACHING EXPERIENCE**Accademic Seminars for post-graduated students**

- 1) Daily consumption of orange juice from *Citrus sinensis* L. Osbeck affects Gut Microbiota Profiling as unveiled by an integrated meta-omics approach. University of São Paulo, School of Pharmaceutical Sciences, Brazil. 26/06/2017
- 2) Metabolomics in Nutritional Research: Concepts and Applications. University of São Paulo, School of Pharmaceutical Sciences, Brazil. 19/05/2016
- 3) NMR Spectroscopy: Basic Principles, Concepts, and Applications in Metabolomics: Part II. University of São Paulo, School of Pharmaceutical Sciences, Brazil. 05/10/2015
- 4) NMR Spectroscopy: Basic Principles, Concepts, and Applications in Metabolomics: Part I. University of São Paulo, School of Pharmaceutical Sciences, Brazil. 28/09/2015
- 5) Metabolomics in the study of gut microbiota-host interactions University of São Paulo, School of Pharmaceutical Sciences, Brazil. 03/08/2015
- 6) A non-targeted metabolomics approach to evaluate the effects of biomass and chitosan elicitation on primary and secondary metabolism of *Hypericum perforatum in vitro* roots. Postgraduate program in Pharmaceutical Sciences at Universidade do Vale do Itajai, Brazil. 07/08/2014

Participation in Scientific Conferences with attendance certificate (*oral presentation)

- 1) ***Brasili E:** Daily consumption of orange juice from *Citrus sinensis* L. Osbeck affects Gut Microbiota Profiling as unveiled by an integrated meta-omics approach. "8th International Conference on Polyphenols and Health", 3 – 6 October **2017**, Quebec City, Canada.
- 2) ***Brasili E:** An integrated metabolomics approach to evaluate the effects of orange juice intake in healthy volunteers. 2nd International Symposium Advances in Food Science and Nutrition, 11-12 September **2017**, Food Research Center – FoRC, University of São Paulo, SP, Brasil.
- 3) ***Brasili E:** Estudo comparativo da ingestão de sucos de laranja Pera (comum) e Cara-cara (rica em licopeno), em humanos saudáveis: abordagem metabólica. Workshop "Food Bioactive Compounds", 6 June **2016**, Food Research Center – FoRC, University of São Paulo, SP, Brasil.
- 4) ***Brasili E:** "Citricos revisitados novos achados para hesperidina". Conference SupplySide Brazil, 14-15 June **2016**, Pavilhão do Anhembi, São Paulo, SP, Brasil.
- 5) ***Brasili E:** Dietary anticancer compounds. VIII Simpósio Ibero-americano de Plantas Mediciniais e III Simpósio Ibero-americano de Investigação em Câncer, 24 - 27 October **2016**, Itajai, SC, Brasil.
- 6) ***Brasili E, Praticò G, Marini F, Valletta A, Capuani G, Sciubba F, Miccheli A, Pasqua G.** Non-targeted metabolomics approach to evaluate the effect of biomass growth and chitosan elicitation on primary and secondary metabolism in *Hypericum perforatum in vitro* roots. 6th Annual *Hypericum* Meeting. **2013**, Kosice (Slovak Republic).
- 7) ***Brasili E, Praticò G, Capuani G, Valletta A, Marini F, Miccheli A, Pasqua G.** A non-targeted metabolomic analysis of *in vitro* regenerated roots of *Hypericum perforatum* L. Work groups for cell and molecular biology and for biotechnology and differentiation. **2013**, Ferrara (Italy).
- 8) Calvani R, **Brasili E**, Capuani G, Tomassini A, Sciubba F, Mengheri E, Miccheli A. Effect of age and probiotic supplementation on the mouse metabolome – a look into the homeostenosis window. Metabomeeting 2012. **2012**, Manchester (UK). Abstract book, p.108.
- 9) ***Brasili E, Valletta A, Praticò G, Capuani G, Miccheli A, Pasqua G.** Metabolomics analysis of regenerated *in vitro* roots Analisi metabolomica di radici rigenerate *in vitro* di *Hypericum perforatum* subsp. *angustifolium* in risposta all'elicitazione". Work groups for cell and molecular biology and for biotechnology and differentiation. **2012**, Abano- Terme, Padova, (Italy).
- 10) ***Praticò G, Brasili E, Capuani G, Miccheli A, Pasqua G, Sciubba F, Valletta A.** A study on the primary and secondary metabolism of *Hypericum perforatum* roots by NMR. **2012**, 5th Young Congress, University Sapienza of Rome.
- 11) **Brasili E, Tomassini A, Finamore A, Roselli M, Mengheri E, Capuani G, Sciubba F, Miccheli A.** Probiotic treatment induced age dependent metabolic changes. 6th Probiotics, Prebiotics & New Foods. **2011**, Rome. Book of Abstracts, p.5111-13.
- 12) Finamore A, Roselli M, **Brasili E, Donini LM, Neri B, Carnevali P, Mengheri E.** Supplementation with *Lactobacillus helveticus* and *Bifidobacterium longum* induced immunological changes in Moderate Malnourished Elderly Subjects. 6th Probiotics, Prebiotics & New Foods. **2011**, Rome. Book of Abstracts, p.46.
- 13) Finamore A, Roselli M, **Brasili E, Mengheri E.** Inhibition of inflammatory cascade in intestinal cells by *Lactobacillus amylovorus*. **2011**, 15th International Congress of Mucosal Immunology, Paris, Book of Abstract, p.175.
- 14) Marini F, **Brasili E, Capuani E, Miccheli A, Tomassini A, Delfini M, Mengheri E.** Probiotics and Aging: Evaluation of immunological and metabolic changes. Metabolomics 2011. **2011**, Cairn, Australia. Book of Abstract. p.5427-30.
- 15) Finamore A, Roselli M, **Brasili E, Mengheri E.** Immunological Changes in elderly subjects after probiotic supplementation. World Immune Regulation Meeting (WIRM). **2011**, DAVOS, Switzerland.
- 16) **Brasili E, Roselli M, Finamore A, Capuani G, Sciubba F, Tomassini A, Miccheli A, Mengheri E.** Probiotics and aging: evaluation of immunological and metabolic changes. 7th European Mucosal Immunology Group meeting. **2010**, Amsterdam. Abstract book, p. 6829.
- 17) Finamore A, Roselli M, **Brasili E, Elena Mengheri.** Modulation of innate immune response in intestinal cells by *Lactobacillus sobrius*. 7th European Mucosal Immunology Group meeting. **2010**, Amsterdam. Abstract book, p. 6829.

Publications in Scientific Journals

- 1) **Brasili, E.**, Bavasso, I., Petruccelli, V., Vilardi, G., Valletta, A., Dal Bosco, C., ... & Di Palma, L. (2020). Remediation of hexavalent chromium contaminated water through zero-valent iron nanoparticles and effects on tomato plant growth performance. *Scientific Reports*, 10(1), 1-11.
- 2) Simonetti, G., Pucci, N., **Brasili, E.**, Valletta, A., Sammarco, I., Carnevale, E., ... & Loreti, S. (2019). In vitro antimicrobial activity of plant extracts against *Pseudomonas syringae* pv. *actinidiae* causal agent of bacterial canker in kiwifruit. *Plant Biosystems-An International Journal Dealing with all Aspects of Plant Biology*, 1-7.
- 3) Simonetti, G., Palocci, C., Valletta, A., Kolesova, O., Chronopoulou, L., Donati, L., Di Nitto, A., **Brasili E.** ... & Pasqua, G. (2019). Anti-Candida biofilm activity of pterostilbene or crude extract from non-fermented grape pomace entrapped in biopolymeric nanoparticles. *Molecules*, 24(11), 2070.
- 4) Finamore A, Roselli M, Donini LM, **Brasili E**, Rami R, Carnevali P, Mistura L, Pinto A, Giusti AM, Mengheri E. Supplementation with Bifidobacterium longum Bar33 and Lactobacillus helveticus Bar13 mixture improves immunity in elderly and old mice. **2019**, Accepted in *Nutrition*.
- 5) **Brasili E**, Hassimotto NMA, Del Chierico F, Marini F, Quagliarello A, Sciubba F, ... & Lajolo, F. M. Daily consumption of orange juice from *Citrus sinensis* L. Osbeck cv. Cara Cara and cv. Bahia differently affects Gut Microbiota Profiling as unveiled by an integrated meta-omics approach. *Journal of agricultural and food chemistry*. **2019**, 67 (5), 1381-1391.
- 6) Roselli M, Finamore A, **Brasili E**, Rami R, Nobili F, Orsi C, ... & Mengheri, E. Beneficial effects of a selected probiotic mixture administered to high fat-fed mice before and after the development of obesity. *Journal of Functional Foods*, **2018**, 45, 321-329.
- 7) Campos A, **Brasili E**, Cechinel-Zanchett CC, & Cechinel Filho, V. Functional Foods as Source of Bioactive Principles: Some Marked Examples. In *Natural Products as Source of Molecules with Therapeutic Potential* (pp. 111-157). **2018**. Springer, Cham.
- 8) Badiali C, De Angelis G, Simonetti G, **Brasili E**, De Castro Tobaruela E, Purgatto E, ... & Pasqua, G. Chitosan oligosaccharides affect xanthone and VOC biosynthesis in *Hypericum perforatum* root cultures and enhance the antifungal activity of root extracts. *Plant cell reports*, **2018**, 37, 1471-1484.
- 9) Moreira V, **Brasili E**, Fiamoncini J, Marini F, Miccheli A, Daniel H, Ji Hye Lee J, Hassimotto NMA, Lajolo F. Orange juice affects acylcarnitines metabolism in healthy volunteers as revealed by a mass-spectrometry based metabolomics approach. *Food Research International*, **2018**, 107, 346-352.
- 10) Palocci C, Valletta A, Chronopoulou L, Donati L, Bramosanti M, **Brasili E**, Baldan B, Pasqua G. Endocytic pathways involved in PLGA nanoparticle uptake by grapevine cells and role of cell wall and membrane in size selection. *Plant Cell Rep* **2017**, 36:1917–1928.
- 11) Chaves D, Carvalho P, **Brasili E**, Rogero M, Hassimotto N., Diedrich J, Moresco J, Yates JR, Lajolo F. Proteomic Analysis of Peripheral Blood Mononuclear Cells after a High-Fat, High Carbohydrate Meal with Orange Juice. *Journal of Proteome Research*, **2017**, 10.1021/acs.jproteome.7b0047.
- 12) **Brasili E**, Chaves DF, Xavier AA, Mercadante AZ, Hassimotto NM, Lajolo FM. Effect of Pasteurization on Flavonoids and Carotenoids in *Citrus sinensis* (L.) Osbeck cv. 'Cara Cara' and 'Bahia' Juices. *Journal of Agricultural and Food Chemistry*, **2017**, 65(7):1371-1377. DOI:10.1021/acs.jafc.6b05401.
- 13) Simonetti G, **Brasili E**, D'Auria FD, Corpolongo S, Ferrari F, Pasqua G, Valletta A. Prenylated flavonoids and total extracts from *Morus nigra* L. root bark inhibit in vitro growth of plant pathogenic fungi. *Plant Biosystems*. **2017**, 151(5): 783-787, DOI: 10.1080/11263504.2017.1320313.
- 14) **Brasili E**, Filho VC. Metabolomics of cancer cell cultures to assess the effects of dietary phytochemicals. *Critical Reviews in Food Science and Nutrition*, **2017**, 57:1328-1339. DOI: 10.1080/10408398.2014.964799.
- 15) **Brasili E**, Miccheli A, Marini F, Praticò G, Sciubba F, Di Cocco ME, Cechinel VF, Tocci N, Valletta A, Pasqua G. Metabolic Profile and Root Development of *Hypericum perforatum* L. In vitro Roots under Stress Conditions Due to Chitosan Treatment and Culture Time. *Frontiers in Plant Science*. **2016**, 7:507. DOI: 10.3389/fpls.2016.00507.
- 16) Valletta A, De Angelis G, Badiali C, **Brasili E**, Miccheli A, Di Cocco ME, Pasqua G. Acetic acid acts as an elicitor exerting a chitosan-like effect on xanthone biosynthesis in *Hypericum perforatum* L. root cultures. *Plant Cell Reports*. **2016**, 35:1009-20. DOI: 0.1007/s00299-016-1934-x.
- 17) Simonetti G, Tocci N, Valletta A, **Brasili E**, D'Auria FD, Idoux A, Pasqua G. In vitro antifungal activity of extracts obtained from *Hypericum perforatum* adventitious roots cultured in a mist bioreactor against planktonic cells and biofilm of *Malassezia furfur*. *Natural Products Research*, **2016**, 30:544-50. DOI: 10.1080/14786419.2015.1028059.
- 18) Valletta A, Santamaria AR, Fabrini G, Tocci N, Cechinel VF, Wagner T, **Brasili E**, Pasqua G. Strategies for ex situ conservation of *Centaurea cineraria* subsp. *Circae* (Asteraceae), an endemic plant from Lazio (Italy). *Plant Biosystems*, **2015**, 2, 323-332. DOI:10.1080/11263504.2014.1001464.
- 19) **Brasili E**. A non-targeted metabolomics approach to evaluate the effects of biomass growth and chitosan elicitation on primary and secondary metabolism of *Hypericum perforatum* in vitro roots. PhD thesis in Botanical Sciences. Sapienza University of Rome.
- 20) **Brasili E**, Praticò G, Marini F, Valletta A, Capuani G, Sciubba F, Miccheli A, Pasqua G. A non-targeted metabolomics approach to evaluate the effects of biomass growth and chitosan elicitation on primary and secondary metabolism of *Hypericum perforatum* in vitro roots. *Metabolomics* **2014**, 10 (6), 1186-1196. DOI 10.1007/s11306-014-0660-z.
- 21) Calvani R, **Brasili E**, Praticò G, Capuani G, Tomassini A, Marini F, Sciubba F, Finamore A, Roselli M, Marzetti E, Miccheli A. Fecal and urinary NMR-based metabolomics unveil an aging signature in mice. *Experimental Gerontology*. **2014**, 49, 5-11. DOI: doi: 10.1016/j.exger.2013.10.010.

- 22) Calvani R, **Brasili E**, Pratico` G, Sciubba F, Roselli M, Finamore A, Marini F, Marzetti E, Miccheli A. Application of NMR-based Metabolomics to the Study of Gut Microbiota in Obesity. *Journal of Clinical Gastroenterology*, **2014**, 48:S5–S7.
- 23) **Brasili E**, Mengheri E, Tomassini A, Capuani G, Roselli M, Finamore A, Sciubba F, Marini F, Miccheli A. *Lactobacillus acidophilus* La5 and *Bifidobacterium lactis* Bb12 induce different age- related metabolic profiles revealed by 1H-NMR spectroscopy in urine and feces of mice. *Journal of Nutrition*, **2013**, 143, 1549-57, DOI: doi:10.3945/jn.113.177105.
- 24) Roselli M, Finamore A, **Brasili E**, Capuani G, Kristensen HL, Micheloni C, Mengheri E. Impact of organic and conventional carrots on intestinal and peripheral immunity. *J Sci Food Agric*. **2012**, 92, 2913-22. DOI: doi: 10.1002/jsfa.566

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Elisa Brasili