Di Cagno Raffaella: Curriculum Vitae

CURRENT POSITION

Since 1th March 2021 she is full professor (disciplinary science-AGR/16) at the Free University of Bolzano, Faculty of Science and Technology.

PREVIOUS POSITIONS AND EDUCATION

2017 to 2021, associate professor (disciplinary science-AGR/16) at the Free University of Bolzano, Faculty of Science and Technology. 2015 to 2016, associate professor at the Department of Soil, Plant and Food Sciences, University of Bari A. Moro. 2004 – 2014, Researcher (permanent position) at the Faculty of Agriculture Sciences, University of Bari. Academic year 1995-1996 she is graduated in Agricultural Sciences, at University of Bari, she is got full mark (110/110 lode). 1999, she is got to the IACR-Rothamsted (Institute Advanced Crop Research), Biochemistry and Physiology Department, Harpenden (London). 2000, she is got her PhD degree at the "Sant'Anna School Advanced Studies" of Pisa in Applied Plant Biology with full mark. 2000 - 2001 she had two contracts of research at the University of Bari, Department of Plant Protection and Applied Microbiology. 2001 – 2003, post-doc at the University of Bari, Department of Plant Protection and Applied Microbiology.

BIBLIOMETRIC PARAMETERS

As reported (March 2021) by SCOPUS, she is co-author of 183 publications related with food microbiology, publications reviewed had a sum of times cited of 9,189 times, with an index "H" evaluation equal to 58. Her indicators exceed those of the Medians of the candidate full professor of 5.5, 12.3 and 3.9 times for number of publications, number of citations and index H, respectively.

COORDINATION/PARTICIPATION OF/TO PROJECTS

2002, she is responsible of the project "Young researchers" (University of Bari) on "Study of accelerated ripening in cheeses by addition of starter";

2005 and 2006, she received two financial contributes from University of Bari (PRIN COFIN);

2011, she is responsible of the project Cooperation for development of new products, processes and technologies in the agriculture and food (PIF PRO DOP Altamura), Puglia Region (N. 01/Dir/2011/249; founding 309.000,00 €);

2013, she is responsible of the National Operational Programme - Research and Competitiveness 2007-2013, "Development of innovative food items through biotechnological, technological and plant innovations - Biotechnology for the setup of a yogurt vegetable" (founding 321.944,91 €);

2015, she is responsible of the project Cooperation for development of new products, processes and technologies in the agriculture and food (Start Pecorino Crotonese), Calabria Region (PSR 2007 – 2013, DDG n. 10090, founding 168.830,00 €).

2016, she is responsible of the National Research Program (PRIN), D.D. n. 1826 del 20.09.2016: "Processing for healthy cereal foods" (founding 50.970,00 €).

2018, she is responsible of the CRC UNIBZ "Processing for sustainable and healthy sauerkraut: a traditional South Tyrol fermented food (PRO4HEALTHFOOD)" (founding 100,000 €).

2018, she is responsible of the European project SUSFOOD2 Horizon 2020 ERA-NET Cofund Sustainable Food Production and Consumption "Biotransformation of brewers´ spent grain: increased functionality for novel food applications (FUNBREW)" (founding 100,000 €).

2019, she is Co-Pi of the National Area 4 – Qualitá, tipicitá e sicurezza degli alimenti e stili di vita sani, MiPAAF, "Management of breeding systems and environmental drivers for the production and exploitation of natural starter in the cheese making process (NATCASEI)" (founding 140,000 €).

2020, she is responsible of the National Project - Progetti di ricerca e sviluppo per l'attuazione della strategia nazionale di specializzazione intelligente per i settori Applicativi Fabbrica Intelligente e Agrifood PON I&C 2014-2020, Ministero dello Sviluppo Economico, BIOPAN (founding 210,000 €).

TECNOLOGY TRANSFER

2015, she is the scientific responsible of a research project funded by Soremartec Italia S.rl. – Ferrero (Alba, CN) enterprise.

2017, scientific responsible of a research project funded by Puratos Group (Groot-Bijgaarden Belgium) enterprise.

2017, scientific responsible of a research project funded by Zuegg Com (Lana, BZ) enterprise.

2018, scientific responsible of a research project funded by Zuegg Com (Lana, BZ) enterprise.

2018, scientific responsible of a research project funded by Loacker SpA (Auna di Sotto/Renon, BZ) enterprise.

2019, scientific responsible of a research project funded by Molini Favero (Padova) enterprise.

2019, scientific responsible of a research project funded by Grande Impero (Roma) enterprise.

2019, scientific responsible of a research project funded by Puratos Group (Groot-Bijgaarden, Belgium) enterprise.

2019, scientific responsible of a research project funded by Puratos Group (Groot-Bijgaarden, Belgium) enterprise.

2019, scientific responsible of a research project funded by Soremartec Italia S.rl. (Alba, To) enterprise.

2020, scientific responsible of a research project funded by Zuegg Com (Lana, BZ) enterprise.
2020, scientific responsible of a research project funded by Schmidt srl (Lana, BZ) enterprise.
2021, scientific responsible of a research project funded by Dr. Schär AG/SPA (Postal, Bolzano) enterprise.
2010 to 2016 responsible for scientific committee of Spin off BiocomLAB srl (Biogenic Compounds by Lactic Acid Bacteria) (D. R. n. 11681 of 30.11.2009). She is involved in ca. 20 projects with funded by Italian (Barilla, Ferrero, Giuliani, etc...) or foreign (Puratos, Barry Callebaut) enterprises (total founding ca. 320.000,0 €). She has participated to the research activity and to the writing of 10 patents listed in the database SCOPUS. Within the above patents, some novel foods and pharmaceutical products were launched into the market.

EDITORIAL RESPONSIBILITIES

2006, she was involved in the Organize Committee of the Third International Symposium on Sourdough (Bari, Italy 2006) and she was co-author of the relative book of the abstract;
2013 to 2019, she is member of the Editorial Board of the journal Food Microbiology;
2013, she has been editor of the book "Bacterial Communication in Foods" Springer;
2016, member of the Organizing Committee of the 4th International Conference on Microbial Diversity 2017 Bari;
2019, Editor with E. Zannini of Grain-based Foods: Processing, Properties, and Health Attributes" printed Edition of the Special Issue Published in Foods (MDPI) Basel, Switzerland ISBN 978-3-03897-219;
2020, Invited editor of "Microbial Metabolic Pathways and the Fermented Plant Foods – Human Health Axis", Edition of the Special Issue Published in Foods (MDPI) Basel, Switzerland ISSN 2304-8158;
2020, member of the Organizing Committee of the VIII International Symposium on Sourdough, 2022 Bolzano.
Membership of academic or professional bodies (including membership of Editorial Boards of scientific publications; membership of scientific committees for international conferences)

INSTITUTIONAL RESPONSIBILITIES

April 2020 to date, she is Member of the Evaluation Centre (Nucleo di Valutazione) of Libera Universitá di Bolzano. 2017 to today, she was member of the Quality Committee of the Free University of Bolzano. 2017 to today, she is member of the international Ph.D on "Food Engineering and Biotechnology" at the Free University of Bolzano. 2015 to today, she is delegate of the Italian Society of Agro-Food and Environmental Microbiology (SIMTREA) for FEMS. 2004 to 2016 member of the Ph.D on "Microbiology, Health and Food Chemistry" where she has been

supervisor of 7 Ph.D. students. 2007-2010, member of the Commission of the Agricultural Science Faculty regarding the fellowships. 2012, on behalf of the National Agency for the Evaluation of the University and Research (ANVUR), she has been acting as member of the panel of experts for the evaluation of research products (2004-2010) submitted to the assessment of research quality (VQR) in the seven years from 2004 to 2010.

OTHER ACADEMIC RESPONSIBILITIES. EXTERNAL FORM THE UNIVERSITY

2010 to 2016, she was evaluator of international research projects at the Estonian Science Foundation, Estonia; and Research Projects funded by the Foundation for Scientific Research and Technological Development (FCT) of the Ministry of Education and Science of Portugal (FTC.Eval.Natural.Environmental.AGR, Portugal);

2015 to date she is delegate of the Italian Society of Agro-Food and Environmental Microbiology (SIMTREA) for FEMS;

2011 to date, supervisor for research activities in Food Microbiology at the Centre International De Hautes Etudes Agronomiques Méditerranéennes (CIHEAM) - International Centre for Advanced Mediterranean Agronomic Studies (IAMB) (Protocols n. D-04/623, D-04/662; D-04/3; D-04/537, D-04/700 and D-04/908);

2016, invited as specialist on lactic acid fermentation of vegetables within the program McMaster fellowship at the Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia;

2019, she was evaluator of European COST projects at the Fonds national Suisse Schweizerischer National Fonds;

2019, Vice-leader of Working group 3 - Design and development sourdough starter cultures for bread-making and other agri-food products European network COST – SOURDOMICS.

2020, member of the advisory board of the European H2020 project MINE-FOOD (Industrial microbiomes).

2020, invited evaluator at the Huniversität Hamburg for the professorship academic search procedure in "Food Microbiology".

2020, invited as external examiner of the PhD student Andrea Hoehnel from School Food and Nutritional Sciences, UCC College of Cork (Ireland).

2021-2024, member of the Scientific Advisory Committee of Science Foundation Ireland (SFI) VistaMilk Centre Teagasc Moorepark, Fermoy, Co. Cork, Ireland.

AREA OF EXPERTISE

[i] Molecular microbiology and biotechnology of sourdough, cheese and vegetable/fruit lactic acid bacteria; [ii] proteomics of lactic acid bacteria in response to environmental stresses and quorum

sensing; [iii] synthesis of biogenic compounds by lactic acid bacteria; and [iv] transcriptomics and phenomics of lactic acid bacteria in response to plant niche environments.

TEACHING ACTIVITIES (TITLE OF COURSES GIVEN LAST 4 YEARS)

AT THE FREE UNIVERSITY OF BOLZANO

2016 – 2017, Summer School on "Fermentation of Baked Goods" (30 hours); Summer School on "Wine Fermentation" (30 hours);

2017 – 2018, "Food Microbiology" (60 hours).

2018 – 2019, Microbiologia e Tecnologie Alimentari (60 hours) Bachelor in Agricultural and Agro-Environmental Sciences. Fruit and Vegetable Fermentation (30 hours) optional course, Bachelor in Agricultural and Agro-Environmental Sciences. The natural microbial starters for innovation and authenticity (60 hours) LM Food Sciences for Innovation and Authenticity (LM70). Meta-Omics approaches to study the food fermentations (20 hours) PhD Food Engineering and Biotechnology.

2019 – 2020, Microbiology and Food Microbiology (60 hours) - Bachelor Degree, course of Agricultural and Agro-Environmental Sciences (L-25). The natural microbial starters for innovation and authenticity (60 hours) LM Food Sciences for Innovation and Authenticity (LM70). Meta-Omics approaches to study the food fermentations (20 hours) PhD Food Engineering and Biotechnology.

2020 – 2021, The natural microbial starters for innovation and authenticity (60 hours) LM Food Sciences for Innovation and Authenticity (LM70). Meta-Omics approaches to study the food fermentations (30 hours) PhD Food Engineering and Biotechnology. Food-Human axis (30 hours) PhD Food Engineering and Biotechnology.

2017 – 2021 she is supervisor of 8 bachelor theses, 8 master theses and 6 PhD students.

LIST OF PUBLICATIONS (2017 – 2021)

Following, are listed the publications of the last 4 years, only including articles published on international per review journals and chapters on books edited by international academic presses. Based on the scientific role assumed, she is first author and/or corresponding author in most of the articles.

1. Luongo, D., Coppola, A., Treppiccione, L., Bergamo, P., Sorrentino, A., Ferrocino, I., Turroni, S., Neviani, E., **Di Cagno, R**., Cocolin, L., Rossi, M, 2017. Modulation of the cytokine profile in Caco-2 cells by faecal lactobacilli and bifidobacteria from individuals with distinct dietary habits. *Cytokine* 90, 80-87.

2. R. Di Cagno, P. Filannino, I. Cavoski, A. Lanera, B. M. Mamdouh, M. Gobbetti. 2017. Bioprocessing technology to exploit organic palm date (*Phoenix dactylifera* L. cultivar Siwi) fruit

as a functional dietary supplement. *Journal of Functional Foods* 31, 9-19.

3. Di Cagno R, Filannino P, Gobbetti M. 2017. Lactic acid fermentation drives the optimal volatile flavor-aroma profile of pomegranate juice. *Int J Food Microbiol.* 248, 56-62.

4. Pontonio E, **Di Cagno R**, Mahony J, Lanera A, De Angelis M, van Sinderen D, Gobbetti M. 2017. Sourdough authentication: quantitative PCR to detect the lactic acid bacterial microbiota in breads. *Sci Rep.* 7, 624.

5. Milanović V, Osimani A, Aquilanti L, Tavoletti S, Garofalo C, Polverigiani S, Litta-Mulondo A, Cocolin L, Ferrocino I, **Di Cagno R**, Turroni S, Lazzi C, Pellegrini N, Clementi F. 2017. Occurrence of antibiotic resistance genes in the fecal DNA of healthy omnivores, ovo-lacto vegetarians and vegans. *Mol Nutr Food Res*. 61(9).

6. Luongo D, Treppiccione L, Sorrentino A, Ferrocino I, Turroni S, Gatti M, **Di Cagno R**, Sanz Y, Rossi M. 2017. Immune-modulating effects in mouse dendritic cells of lactobacilli and bifidobacteria isolated from individuals following omnivorous, vegetarian and vegan diets. *Cytokine* 97, 141-148.

7. A. Rosi, P. Mena, N. Pellegrini, S. Turroni, E. Neviani, I. Ferrocino, **R. Di Cagno**, L. Ruini, R. Ciati, D. Angelino, J. Maddock, M. Gobbetti, F. Brighenti, D. Del Rio, F. Scazzina.2017. Environmental impact of omnivorous, ovo-lacto-vegetarian, and vegan diet. *Sci Rep.* 7, 6105.

8. P. Filannino, **R. Di Cagno**, M. Gobbetti. 2017. Metabolic and functional paths of lactic acid bacteria in plant foods: get out of the labyrinth. *Curr Opin Biotechnol*. 49, 64-72.

9. Coda, R., Kianjam, M., Pontonio, E., Verni, M., **R. Di Cagno**, Katina, K., Rizzello, C.G., Gobbetti, M. 2017. Sourdough-type propagation of faba bean flour: Dynamics of microbial consortia and biochemical implications. Intern. J. Food Microbiol. 248, 10-21.

10. Pontonio, E., **Di Cagno, R.,** Tarraf, W., (...), De Mastro, G., Gobbetti, M. 2018. Dynamic and assembly of epiphyte and endophyte lactic acid bacteria during the life cycle of Origanum vulgare L. Frontiers in Microbiol. https://doi.org/10.3389/fmicb.2018.01372

11. Gobbetti, M., **Di Cagno, R.,** Calasso, M., (...), Fox, P.F., De Angelis, M. 2018. Drivers that establish and assembly the lactic acid bacteria biota in cheeses. Trends Food Sci.Technol. 78, 244-254.

12. Filannino, P., De Angelis, M., **Di Cagno, R.,** Gozzi, G., Riciputi, Y, Gobbetti, M. 2018. How *Lactobacillus plantarum* shapes its transcriptome in response to contrasting habitats. Environ. Microbiol. 20, 3700-3716.

13. Gobbetti M, Pontonio E, Filannino P, Rizzello CG, De Angelis M, **R. Di Cagno**. 2018. How to improve the gluten-free diet: The state of the art from a food science perspective. Food Res Int. 110, 22-32.

14. R. Di Cagno, Filannino, P., Cantatore, V., Gobbetti, M. 2019. Novel solid-state fermentation of bee-collected pollen emulating the natural fermentation process of bee bread. Food Microbiol. 82, 218-230.

15. Cantatore, V., Filannino, P., Gambacorta, G., (...), Gobbetti, M., **R. Di Cagno.** 2019. Lactic Acid Fermentation to Re-cycle Apple By-Products for Wheat Bread Fortification. Frontiers Microbiol. https://doi.org/10.3389/fmicb.2019.02574.

16. Palla, M., Agnolucci, M., Calzone, A., **R. Di Cagno** (...), Rizzello, C.G., Pontonio, E. 2019. Exploitation of autochthonous Tuscan sourdough yeasts as potential starters. Int. J. Food Microbiol. 302, 59-68.

17. Gobbetti, M., De Angelis, M., **R. Di Cagno** (...), Archetti, G., Rizzello, C.G. 2019. Novel insights on the functional/nutritional features of the sourdough fermentation. Food Microbiol. 302, 103-113.

18. R. Di Cagno, Filannino, P., Vincentini, O., (...), Cavoski, I., Gobbetti, M. 2019. Fermented portulaca oleracea L. Juice: A novel functional beverage with potential ameliorating effects on the intestinal inflammation and epithelial injury. Nutrients. 23, 11.

19. De Pasquale, I., **R. Di Cagno**, Buchin, S., De Angelis, M., Gobbetti, M. 2019. Use of autochthonous mesophilic lactic acid bacteria as starter cultures for making Pecorino Crotonese cheese: Effect on compositional, microbiological and biochemical attributes. Food Res. Int. 116, 1344-1356.

20. Milanović, V., Osimani, A., Cardinali, F., **R. Di Cagno** (...), Pellegrini, N., Clementi, F. 2019. Erythromycin-resistant lactic acid bacteria in the healthy gut of vegans, ovo-lacto vegetarians and omnivores. PLoS One. 14, e0220549.

21. Filannino, P., **R. Di Cagno**, Tlais, A.Z.A., Cantatore, V., Gobbetti, M. 2019. Fructose-rich niches traced the evolution of lactic acid bacteria toward fructophilic species. Crit. Rev. Microbiol. https://doi.org/10.1080/1040841X.2018.1543649

22. Pontonio, E., Dingeo, C., **R. Di Cagno** (...), Gobbetti, M., Rizzello, C.G. 2020. Brans from hull-less barley, emmer and pigmented wheat varieties: From by-products to bread nutritional improvers using selected lactic acid bacteria and xylanase. Int. J. Food Microbiol. 313, 16.

23. R. Di Cagno, Filannino, P., Cantatore, V., (...), Cavoski, I., Gobbetti, M. 2020. Design of potential probiotic yeast starters tailored for making a cornelian cherry (Cornus mas L.) functional beverage. Int. J. Food Microbiol. 323, 108591.

24. Filannino, P., Tlais, A.Z.A., Morozova, K., (...), Gobbetti, M., **R. Di Cagno.** 2020. Lactic acid fermentation enriches the profile of biogenic fatty acid derivatives of avocado fruit (Persea americana Mill.). Food Chem. 317, 126384.

25. De Angelis, M., Ferrocino, I., Calabrese, F.M., De Filippis, F., Cavallo, N., Siragusa, S., Rampelli, S., **R. Di Cagno** (...), Gobbetti, M., Cocolin, L. 2020. Diet influences the functions of the human intestinal microbiome. Sci. Rep. 10, 4247.

26. Acín Albiac, M., **Di Cagno, R.,** Filannino, P., Cantatore, V., Gobbetti, M. 2020. How fructophilic lactic acid bacteria may reduce the FODMAPs content in wheat-derived baked goods: A proof of concept. Microbial Cell Fac. 19, 181.

27. Polo, A., Arora, K., Ameur, H., **Di Cagno, R.,** De Angelis, M., Gobbetti, M. 2020. Gluten-free diet and gut microbiome. J. Cereal Sci. 95, 103058.

28. Milanović, V., Aquilanti, L., Tavoletti, S., Garofalo, C., Osimani, A., De Filippis, F., Ercolini, D., Ferrocino, I., **Di Cagno, R,** Turroni, S., Lazzi, C., Pellegrini, N., Clementi, F. 2020. Distribution of antibiotic resistance genes in the saliva of healthy omnivores, ovo-lacto-vegetarians, and vegans. Genes 11, 1-18.

29. Gobbetti, M., De Angelis, M., **Di Cagno, R.,** Polo, A., Rizzello, C.G. 2020. The sourdough fermentation is the powerful process to exploit the potential of legumes, pseudo-cereals and milling by-products in baking industry. Critical Rev. Food Sci. Nut. 60, 2158-2173.

30. Acin-Albiac, M., Filannino, P., Gobbetti, M., **Di Cagno, R.,** 2020. Microbial high throughput phenomics: The potential of an irreplaceable omics. Comp. Struct. Biotechnol. J. 18, 2290-2299.

31. Tlais, A.Z.A., Da Ros, A., Filannino, P., Vincentini, O., Gobbetti, M., **Di Cagno, R.** 2021. Biotechnological re-cycling of apple by-products: A reservoir model to produce a dietary supplement fortified with biogenic phenolic compounds. Food Chem. 336, 127616.

32. Nikoloudaki, O., Lemos Junior, W.J.F., Borruso, L., ...**Di Cagno, R.**, Gobbetti, M. 2021. How multiple farming conditions correlate with the composition of the raw cow's milk lactic microbiome. Environ. Microbiol. 23, 1702–1716.

33. De Angelis, M., Siragusa, S., Vacca, M., **Di Cagno R**., Cristofori F., Swarm M., Pelzer S., Flügel M., Speckmann B., Francavilla, R., Gobbetti, M. 2021. Selection of gut-resistant bacteria and construction of microbial consortia for improving gluten digestion under simulated gastrointestinal conditions. Nutrients, 13, 1–18.

34. Nikoloudaki, O., Lemos Junior, W.J.F., Campanaro, S., **Di Cagno, R**., Gobbetti, M. 2021. Role prediction of Gram-negative species in the resistome of raw cow's milk. Int. J. Food Microbiol. 340, 109045.

35. Filannino, P., **Di Cagno, R.,** Vincentini, O., Pinto D., Polo A., Mailetti F., Porrelli, A., Gobbetti, M. 2021. Nutrients Bioaccessibility and Anti-inflammatory Features of Fermented Bee Pollen: A Comprehensive Investigation. Frontiers in Microbiology, 12, 622091.

36. M'hir, S., Filannino, P., Mejri, A., Tlais A.Z.A., **Di Cagno, R.,** Ayed, L. 2021. Functional

exploitation of carob, oat flour, and whey permeate as substrates for a novel kefir-like fermented beverage: An optimized formulation. Foods, 10(2), 294.

37. Filannino, P., **Di Cagno, R**., Gambacorta, G., Tlais A.Z.A., Cantatore, V., Gobbetti, M. 2021. Volatilome and bioaccessible phenolics profiles in lab-scale fermented bee pollen. Foods, 10(2), 286.

38. Arora, K., Ameur, H., Polo, A., **Di Cagno R.,** Rizzello, C.G., Gobbetti, M. 2021. Thirty years of knowledge on sourdough fermentation: A systematic review. Trends Food Sci. Technol., 108, 71–83.

39. Acin-Albiac, M., Filannino, P., Arora, K., Da Ros A., Gobbetti, M., **Di Cagno, R.** 2021. Role of lactic acid bacteria phospho-β-glucosidases during the fermentation of cereal by-products. Foods, 10(1), 97.

Chapters in books

1. R. Di Cagno, P. Filannino, M. Acìn-Albiac, M. Gobbetti, 2020. New insights into lactic acid bacteria fermentation of plant foods through complementary omics. Reference Collection in Food Science, Elsevier ISBN 9780081005965, DOI: 10.1016/j.tifs.2017.05.002.

2. O. Nikoloudaki, M. Gobbetti, **R. Di Cagno**. 2021. *Lactobacillus* spp.: *Lactobacillus helveticus*, Encyclopedia in W. Fuquay (Ed) Encyclopedia of Dairy Sciences (Second Edition), Elsevier Academic Press, Pages 105–110, https://doi.org/10.1016/B978-0-08-100596-5.23006-0.

Bolzano, 20.03.2021

Raffaella Di Cagno