



UNIVERSITÀ DEGLI STUDI DELL'AQUILA

Prof. Maria Cantarella Curriculum scientifico

(Aggiornato il 1/10/2018)

Curriculum

List of Publication Papers

Prof. Maria Cantarella is full professor of Fundamentals of Industrial Biotechnology at the University of L'Aquila (Engineering Faculty). She teaches Fundamentals of Industrial Biological Processes.

She took her degree in Chemistry at the University of Naples in 1974.

Over the years, She got the following permanent positions at: the University of Naples (Faculty of Sciences) from 1980 to 1987 as researcher; at the University of Salerno and of the University of L'Aquila (Engineering Faculty) from 1988 to 1990 and from 1990 to 2001, respectively as Associate Professor. In 2001 she became full professor.

She spent abroad several research periods: in 1976, 7 months, and in 1987, 6 months, at the Technological University of Compiègne, France; in 1981, 6 months, at the Purdue University of West Lafayette, Indiana USA.

She was visiting professor at the Department of Biochemical and Pharmaceutical Technology in the years 1995, 1998, 2003, 2006, 2007, 2010 and 2012 offering each time a post-graduation course on the "Use of membrane reactors for bioprocess optimization".

The main topics of research interest nowadays are on the characterization of membrane bioreactors for process optimization, the enzymatic hydrolysis of lignocellulosic materials and on the bioconversion of nitrile into amide and or acid.

Over the years, she published numerous papers and gave many seminars. She is co-author of papers in international journals (95), chapters in edited books (7), proceedings in edited books (30) and at international conferences (39).

She got excellent at the evaluation of the research by the VQR .

Scientific production of the last decade

Papers appeared in international journals

95. Pasquarelli F., Chuchat N., Spera A., Cantarella L., **Cantarella M.** The Importance of pH on the Biotransformation of Bromoxynil by *Microbacterium imperiale* CBS 498-74 Resting Cells. (2016). **CHEM. ENG. TRANS.** VOL. 49, 433-438.

94. Chuchat N., Pasquarelli F., Spera A., Cantarella L., **Cantarella M.** Acetonitrile Biotransformation into Less Toxic Compounds by a Bioprocess based on the Nitrile Hydratase/Amidase Sequential Enzymatic Reactions. (2016). **CHEM. ENG. TRANS.** VOL. 49, 595-600.

93. Pasquarelli F., Spera A., Cantarella L. **Cantarella M**
 . Biodegradation of bromoxynil using the cascade enzymatic system nitrile hydratase/amidase from *Microbacterium imperiale* CBS 498-74. Comparison between free enzymes and resting cells. (2015) **RSC Adv.**,5, 36913-36923, DOI: 10.1039/c5ra01438g
92. Guida V., Niro E., Landi N., Chambery A., Parente A., Cantarella L., **Cantarella M.**, Di Maro A. ?Immobilised peroxidases from *Asparagus acutifolius* L. seeds for olive mill waste watertreatment? (2014)**RSC Adv.**, 2014, 4, 61482-61490 DOI: 10.1039/c4ra11310a
91. **Cantarella Maria**, Mucciante Claudia, Cantarella Laura, ?Inactivating effects of lignin-derived compounds released during lignocellulosic biomass pretreatment on the endo-glucanase catalyzed hydrolysis of carboxymethylcellulose: a study in continuous stirred ultrafiltration-membrane reactor? (2014) **Bioresource Technology** Volume 156, March 2014, Pages 48?56 Accepted manuscript (unedited version) available online: 9-JAN-2014 DOI information:10.1016/j.biortech.2013.12.12
90. di Addezio F., Yoriyaz E.J., **Cantarella M.**
 , Vitolo M. Sucrose hydrolysis by invertase using a membrane reactor: effect of the membrane cut-off on the enzyme performance.2014. **Brazilian Journal of Pharmaceutical Sciences** vol. 50, n. 2, apr./jun., 2014 <http://dx.doi.org/10.1590/S1984-82502014000200004>
89. Guida V., **Cantarella M.**
 , Chambery A., Mezzacapo M.C., Parente A., Landi N., Severino V., Di Maro A. Purification and Characterization of Novel Cationic Peroxidases from *Asparagus acutifolius* L. with Biotechnological Applications. **Mol Biotechnol**(2014) 56:738?746 DOI 10.1007/s12033-014-9752-2
88. di Addezio F., Yoriyaz E.J., Cantarella L., **Cantarella M.**
 , Vitolo M. U sing a Membrane Reactor for Sucrose Hydrolysis: The Effect of Reactor?s Design on Invertase Stability (2013) **Journal of Environmental Science and Engineering A** 2 582-592 Formerly part of **Journal of Environmental Science and Engineering** , ISSN 1934-8932
87. Kaplan O., Bezouska K., Plíhal O., Ettrich R., Kulik N., Vanek O., Kavan D., Benada O., Malandra A., ?veda O., Veselá A. B., Rinágelová A., Slámová K., **Cantarella M.**, Felsberg J., Du?ková J., Dohnálek J., K?en V., Martinkova L. Retraction: Heterologous expression, purification and characterization of nitrilase from *Aspergillus niger* K10 (2013) **BMC Biotechnology**, 13 , art. no. 57
86. Rinágelová A., Kaplan O., Veselá A.B., Chmátal M., K?enková A., Plíhal O., Pasquarelli F., **Cantarella M.** Martínková L. Cyanide hydratase from *Aspergillus niger* K10: overproduction in *Escherichia coli*, purification, characterization and use in continuous cyanide degradation. 2013, **Process Biochemistry**
85. Cantarella L., Gallifuoco A., Spera A., **Cantarella M.**
 Nitrile, amide and temperature effects on amidase-kinetics during acrylonitrile bioconversion by nitrile-hydratase/amidase in-situ cascade system (2013) **Bioresource Technology**, **142**: 320-328.
84. Kaplan O. Vejvoda V., Plíhal O., Pompach P., Kavan D., Bojarová P. , Bezo?ka K., Macková M. , **Cantarella M.**, Jirk? V., K?en V., Martínková L. Erratum to: Purification and characterization of a nitrilase from *Aspergillus niger* K10 (2013) **Applied Microbiology and Biotechnology** 97 (8), pp. 3745-3746
83. **Cantarella M.**, Cantarella L., Gallifuoco A., Spera A., Martínková L. Nicotinic acid bio-production by *Microbacterium imperiale* CBS 489-74: Effect of 3-cyanopyridine and temperature on amidase activity (2012) **Process Biochemistry** 47, 1192?1196 doi:10.1016/j.procbio.2012.03.010.
82. Cantarella L., Gallifuoco A., Malandra A., Martínková L., Spera A., **Cantarella M.**
 High-yield continuous production of nicotinic acid via nitrile hydratase?amidase cascade reactions using cascade CSMRs (2011) **Enzyme and Microbial Technology** 48, 345?350 doi:10.1016/j.enzmictec.2010.12.010

81. Kaplan O., Bezouška K., Plíhal O., Etrich R., Kulík N., Vaněk O., Kavan D., Benada O., Malandra A., Vejvoda O., Veselá A. B., Rinágelová A., Slámová K., **Cantarella M.**, Felsberg J., Dušková J., Dohnálek J., Křen V., Martínková L. Heterologous expression, purification and characterization of nitrilase from *Aspergillus niger* K10 (2011) *BMC Biotechnology* 11, art. no. 2 DOI: 10.1186/1472-6750-11-2.
80. Cantarella L., Gallifuoco A., Malandra A., Martínková L., Pasquarelli F., Spera A., **Cantarella M.** Application of continuous stirred membrane reactor to 3-cyanopyridine bioconversion using the nitrile hydratase-amidase cascade system of *Microbacterium imperiale* CBS 498-74 (2010) *Enzyme and Microbial Technology* 47:64-70, DOI: 10.1016/j.enzmictec.2010.05.009.
79. Martínková L., Vejvoda V., Kaplan O., Kubáček D., Malandra A., **Cantarella M.**, Bezouška K., Křen V. Fungal nitrilases for use as biocatalysts: Recent developments (2009) *Biotechnology Advances* 27:661-670, doi:10.1016/j.biotechadv.2009.04.027.
78. Malandra A., **Cantarella M.**, Kaplan O., Vejvoda V., Uhnáková B., Ptáňková B., Kubáček D., Martínková L. Continuous hydrolysis of 4-cyanopyridine by nitrilases from *Fusarium solani* O1 and *Aspergillus niger* K10 (2009) *Applied Microbiology and Biotechnology* 85:277-284, DOI 10.1007/s00253-009-2073-x ISSN: 0175-7598 (print version).
77. **Cantarella M.**, Cantarella L., Gallifuoco A., Intellini R., Kaplan O., Spera A., Martínková L. Amidase-catalyzed production of nicotinic acid in batch and continuous stirred membrane reactors (2008) *Enzyme and Microbial Technology* 42:222-229, doi:10.1016/j.enzmictec.2007.09.012.
76. Vejvoda V., Kaplan O., Bezouška K., Pompach P., Šulc M., **Cantarella M.**, Benada O., Uhnáková B., Rinágelová A., Lutz-Wahl S., Fischer L., Křen V., Martínková L. Purification and characterization of a nitrilase from *Fusarium solani* O1 (2008) *Journal of Molecular Catalysis B: Enzymatic* 50: 99-106, doi:10.1016/j.molcatb.2007.09.006.
75. Gallifuoco A., **Cantarella M.**, Marucci M. Investigating the kinetics of the enzymatic depolymerization of polygalacturonic acid in continuous UF-membrane Reactors (2007) *Biotechnology Progress* 23, 1111-1117.
74. Kaplan O., Vejvoda V., Plíhal O., Pompach P., Kavan D., Fialová P., Bezouška K., Macková M., **Cantarella M.**, Jirků V., Křen V., Martínková L. Purification and characterization of a nitrilase from *Aspergillus niger* K10 (2006) *Applied Microbiology and Biotechnology* 73, 567-575.
73. **Cantarella M.**, Cantarella L., Gallifuoco A., Spera A. Use of a UF-membrane reactor for controlling selectively the nitrile hydratase - amidase system in *Microbacterium imperiale* CBS 498-74 resting cells. Case study: benzonitrile conversion (2006) *Enzyme and Microbial Technology* 38, 126-134.
72. **Cantarella M.**, Cantarella L., Gallifuoco A., Spera A. Nitrile bioconversion by *Microbacterium imperiale* CBS 498-74 resting cells in batch and UF- membrane bioreactors (2006) *Journal of Industrial Microbiology and Biotechnology* 33, 208-214.

Chapters in edited book

1. Cantarella L., Pasquarelli F., Spera A., Martínková L., **Cantarella M.** 2014. Key-study on the kinetic aspects of the *in-situ*

NHase/AMase cascade system of *M. imperiale* resting cells for nitrile bioconversion. Chapter 13 in *Cascade biocatalysis integrating stereoselective and environmentally friendly reactions*. Sergio Riva, Wolf-Dieter Fessner (Eds) edited by Wiley Publishers, ISBN: 978-3-527-33522-0.

2. Martínková L., Vejvoda V., Kaplan O., Křen V., Bezouška K., **Cantarella M.** 2008. Nitrilases from filamentous fungi. Chapter 14 in ***Modern Biocatalysis Stereoselective and Environmentally Friendly Reactions.*** Edited by Wolf-Dieter Fessner and Thorleif Anthonsen published by Wiley VCH Verlag GmbH & Co. KGaA, Weinheim 2008 229-245 ISBN: 978-3-527-32071-4.
3. **Cantarella M.**, Gallifuoco A., Spera A., Cantarella L., Kaplan O., Martínková L. 2008. UF- Membrane bioreactors for kinetics characterization of nitrile hydratase-amidase catalyzed reactions: a short survey. Chapter 17 in ***Modern Biocatalysis Stereoselective and Environmentally Friendly Reactions*** . Edited by Wolf-Dieter Fessner and Thorleif Anthonsen published by Wiley VCH Verlag GmbH & Co. KGaA, Weinheim, 273-286 ISBN: 978-3-527-32071-4.