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### **LÍNEA(S) DE INVESTIGACIÓN O ÁREAS DE TRABAJO**

- ✓ SÍNTESIS, CARACTERIZACIÓN Y PROPIEDADES DE POLÍMEROS

### **NÚMERO DE TESIS DE DOCTORADO DIRIGIDAS EN LOS ÚLTIMOS 10 AÑOS (FINALIZADAS)**

- ✓ Bruno Urbano C., 23-01-2012  
"Resinas Nanocompositos y su Potencial Aplicación en Procesos de Intercambio Iónico"
- ✓ Hernán Alonso Valle, 28-12-2010  
"Preparación y Caracterización de Hidrogeles Portadores de Nanopartículas de Plata de Origen Bacteriano y su Potencial Efecto Bactericida"

### **NÚMERO DE TESIS DIRIGIDAS O ACTIVIDAD FORMATIVA EQUIVALENTE GUIADAS EN EL PROGRAMA, EN LOS ÚLTIMOS 10 AÑOS (FINALIZADAS)**

Víctor Campos R., 28-12-2010

"Obtención y Caracterización de Nanocompuestos de liberación Controlada de principios Activos de Aceites Esenciales con Actividad Antimicrobiana para Potencial uso en Empaque de *Fragaria Ananassa*"

Yesid A. Tapiero M., 13-11-2012

"Síntesis y Caracterización de Membranas con Capacidad de Intercambio Iónico para la Remoción de Cromo Hexavalente y Trivalente desde Soluciones Acuosas"

### **LISTADO DE PUBLICACIONES EN LOS ÚLTIMOS 10 AÑOS.**

Cristian H. Campos, Bruno F. Urbano, Bernabé L. Rivas "Synthesis and characterization of organic-inorganic hybrid composites from poly(acrylic acid)-[3-(trimethoxysilyl)propyl methacrylate]-Al<sub>2</sub>O<sub>3</sub>" **Composites Part B: Engineering. 57, 1-7 (2014).**

Hernán Valle, Bernabé L. Rivas, Mar Fernández, María A. Mondaca, María R. Aguilar, Julio SanRomán "Antibacterial Activity of Hydrogel-Nanosilver Composites Based on Copolymers from AMPSNa and their Cytotoxic Effect on Human Fibroblasts" **J. Appl. Polym. Sci. 131, 39644-39654 (2014)**

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Manuel Palencia, Myleidi Vera, Bernabé L. Rivas “Modification of ultrafiltration membranes via interpenetrating polymer networks for removing of boron from aqueous solution” **J. Membr. Sci.** **466**, 192-199 (2014)

Leandro Toledo, Bernabé L. Rivas, Bruno F. Urbano, Julio Sánchez “Novel water-soluble polymer based on N-methyl-D-glucamine and its potential application to remove arsenic” **Sep. Pur. Technol.** **103**, 1-7 (2013).

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*Bernabé L. Rivas, Antonio Maureira N., Catherine Guzmán S.*

*Macromol. Symposia 287, 69-79 (2010).*

*“Water-Soluble Polyelectrolytes with Ability to Remove Arsenic”*

*Bernabé L. Rivas, Julio Sánchez, S. Amalia Pooley, Luis Basaez, Eduardo Pereira, Christophe Bucher, Guy Royal, Eric Saint Aman, Jean-Claude Moutet.*

*Macromol. Symposia 296, 416-428 (2010).*

*“Potential application to remove arsenic by functional polymers in conjunction with membranes and electrooxidation processes”*

*Bernabé L. Rivas, Julio Sanchez*

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*Editors: Nalan Kabay, Jochen Bundschuh, Bruce Hendry, Marek Bryjak, Kazuharu Yoshizuka, Prosun Bhattacharya, Süer Anac.*

*CRC Press, Taylor and Francis Group*

*“Complexes of water-soluble polymers with Cu<sup>2+</sup> and Ag<sup>+</sup> as antibacterial agents*

*Bernabé L. Rivas, Eduardo Pereira, Catherine Guzman, Antonio Maureira.*

*Macromol. Symp. 304, 46-54 (2011)*

*“Metal ion removal properties of water-insoluble functional polymers”*

*Bernabé L. Rivas, Carla Muñoz.*

*Macromol. Symp.304, 40-45 (2011)*

*“Complexing polymer-films in the preparation of modified electrodes for detection of metal ions”*

*Eduardo Pereira, Bernabé L. Rivas, Marie Heitzman, Jean-Claude Moutet, Christophe Bucher, Eric Saint-Aman.*

*Macromol. Symp. 304, 115-125 (2011).*

*“Removal of Chromate and Arsenate Oxy-Anions by Liquid-Phase Polymer-Based Technique”*

*Julio Sánchez, Bernabé L. Rivas.*

*Macromol. Symp. 317-318, 123-126 (2012).*

*“Arsenic Removal by Functional Polymers Coupled to Ultrafiltration Membranes”*

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## **LISTADO DE PROYECTOS DE INVESTIGACIÓN EN LOS ÚLTIMOS 10 AÑOS**

### **1 Patrocinados por Instituciones Extranjeras o en conjunto con ellas.**

- ✓ CONICYT-ECOS (Francia).

2003-2006.

*"Películas de Polímeros Complejantes para Eletroanálisis de Metales trazas"*

Investigador Principal (Chile): Bermabé L. Rivas.

Co-investigadores (Chile): S. Amalia Pooley, Eduardo Pereira, Luis Basaez, Francisco Brovelli..

Investigador principal (Francia): Jean Claude Moutet

Co-investigadores (Francia): Eric Saint-Aman., Guy Royal, Christopher Bucher.

- ✓ CONICYT-CNRS (Francia) 2006

*"Extracción de arsénico trazas desde aguas contaminadas mediante la técnica de retención en fase líquida asistida por polímeros acoplada a electrocatálisis"*

Investigador Principal (Chile): Bermabé L. Rivas.

Co-investigadores (Chile): S. Amalia Pooley, Eduardo Pereira, Luis Basaez, María del Carmen Aguirre.

Investigador principal (Francia): Jean Claude Moutet

Co-investigadores (Francia): Eric Saint-Aman., Guy Royal, Christopher Bucher.

- ✓ CONICYT-CNRS (Francia) 2007

*"Extracción de arsénico trazas desde aguas contaminadas mediante la técnica de retención en fase líquida asistida por polímeros acoplada a electrocatálisis"*

Investigador Principal (Chile): Bermabé L. Rivas.

Co-investigadores (Chile): S. Amalia Pooley, Eduardo Pereira, Luis Basaez.

Investigador principal (Francia): Jean Claude Moutet

Co-investigadores (Francia): Eric Saint-Aman., Guy Royal, Christopher Bucher.

- ✓ CONICYT-ECOS (Francia) 2008-2010

*"Oxidación electrocatalítica de arsénico acoplada a la técnica de retención en fase líquida asistida por polímeros: análisis y extracción de trazas de arsénico"*

Investigador Principal (Chile): Bermabé L. Rivas.

Co-investigadores (Chile): S. Amalia Pooley, Eduardo Pereira, Luis Basaez.

Investigador principal (Francia): Jean Claude Moutet

Co-investigadores (Francia): Eric Saint-Aman., Guy Royal, Christopher Bucher.

- ✓ CONICYT-COLCIENCIAS (Colombia)

*"Síntesis de Nanomateriales Biodegradables a Partir de Monómeros Derivados de Aceite de Higuera y Arcillas Modificadas"*

Investigador Principal (Chile): Bermabé L. Rivas.

Investigador principal (Colombia) : Luis Alberto Ríos

Co-investigadores (Chile): Mónica Pérez, Bruno Urbano

Co-Investigadores (Colombia): Davis Etcheverri

Período 2009-2012.



✓ CONICYT-CNRS (Francia)

*“Polymers containing complexing groups in their main chain: synthesis, characterization and applications for anion extraction”*

*(Polímeros que contienen grupos complejantes en la cadena principal: síntesis caracterización y aplicaciones para extracción de aniones.)*

*Período Abril 2011-Abril 2012*

*Investigador Principal (Chile): Bermabé L. Rivas.*

*Co-investigadores (Chile): Eduardo Pereira, Mónica Pérez, Julio Sanchez*

*Investigador principal (Francia): Guy Royal*

*Co-investigadores (Francia): Jean Claude Moutet, Eric Saint-Aman., Guy Royal, Christopher Bucher.*

✓ *Seventh Framework Programme of European Union, Marie Curie Actions “People”, International “Innovative materials and methods for water treatment”*

*« CHILTURPOL 2 »*

*Research Staff Exchange Scheme “IRSES”,*

*PIRSES-GA-2010-269153*

*Coordinador : Marek Bryjak, Wroclaw University, Polonia*

*Investigador Responsable en Turquía: Nalan Kabay, Ege University, Turquía*

*Investigador Responsable en Chile: Bernabé L. Rivas, Universidad de Concepción, Chile.*

*Investidores participantes en Chile: Eduardo Pereira, Mónica Pérez, Manuel Palencia, Julio Sanchez, Bruno Urbano*

*Período: 2011-2014*

✓ *“Polymer-metal oxide nanocomposites for the photocatalytic water oxidation” (E)*

*Período Abril 2013-Abril Enero 2014*

*Investigador Principal (Chile): Bernabé L. Rivas.*

*Co-investigadores (Chile): Eduardo Pereira, Mónica Pérez, Julio Sanchez, Bruno Urbano, Hernán Valle.*

*Investigador principal (Francia): Marie-Noelle Collomb*

*Co-investigadores (Francia): Jean Claude Moutet, Jerome Fortage*

*“Polymer catalys nanocomposites for the photocatalytic watersplitting reaction”*

*Período Abril 2014-Marzo 2017*

*Investigador Prinicpal (Chile): Bernabé L. Rivas.*

*Co-investigadores (Chile): Eduardo Pereira, Mónica Pérez, Julio Sanchez, Bruno Urbano, Yesid Tapiero.*

*Investigador principal (Francia): Jean Claude Moutet*

*Co-investigadores (Francia): Jerome Fortage, Marie-Noelle Collomb, Alain Deronzier.*

## **PATROCINADOS POR INSTITUCIONES NACIONALES**

- ✓ FONDECYT N°8990011 (Líneas Complementarias) 06-1999/06-2003

*Investigador Principal*

*"Polímeros Funcionales Quelantes de Metales. Síntesis, Caracterización y Propiedades"*

*Inv. Alterno: Dra. Amalia Pooley*

*Co-investigador: Dr. Luis Basáez*

*Investigador-Colaborador: H. Maturana, I. Peric, G. Seguel*

- ✓ FONDECYT N° 1030669 03/2003-03/2007

*Investigador Principal*

*"Polímeros Funcionales Solubles en Agua Quelantes de Metales. Síntesis, Caracterización y Propiedades"*

*Investigador Alterno: Dra. S. Amalia Pooley*

*Co-investigador: Dr. Eduardo Pereira.*

- ✓ Gobierno Regional-CONICYT. (2003-2009) Universidad de Concepción, Universidad del Bio-Bio.

*"Centro de Investigación de Polímeros Avanzados" CIPA*

*Investigador Principal*

*Director alternativo: Dr. Alex Berg*

- ✓ FONDEF N° 02/2007-01/2010

*"Desarrollo y aplicaciones de nuevos nanocompuestos termoplásticos"*

*Investigador Principal*

*Director Alterno: Carola Venegas.*

*Investigadores: Mónica Pérez, Alvaro Maldonado.*

- ✓ FONDECYT N° 1070542 03/2007-03/2011.

*Investigador Principal*

*"Polímeros Funcionales. Síntesis, caracterización, propiedades de retención de iones metálicos"*

*Investigador Alterno: Dra. S. Amalia Pooley.*

*Co-investigador: Dr. Eduardo Pereira.*

- ✓ Proyecto FONDECYT 1110079 (Marzo 2011-Marzo 2015)

*Investigador Principal*

*"Functional Polymers and their Capability to Remove Pollutant Ions"*

*Investigador Responsable: Bernabé L. Rivas*

*Co-investigadores: Eduardo Pereira, Mónica Pérez*

- ✓ Proyecto PIA, ACT-130 (Enero 2010-Enero 2013)

*“Materiales poliméricos aplicados a la química ambiental y forense”*

*Investigador Principal*

*Director : Bernabé L. Rivas*

*Sud- directores: Héctor Mansilla, Eduardo Pereira*

*Investigadores: David Contreras, Néstor Escalona, S. Amalia Pooley, Pedro Saez, , Jorge Yañez, Claudio Zaror*

✓ *Fondef D-02I 1090, (Agosto 2004-Agosto 2005)*

*Co-investigador.*

*“Estándares para la formación en ciencias de profesores de enseñanza media”*

*Investigador Principal: Dr. Rafael Correa.*

*Investigador Alterno: Dr. Abelardo Castro*

*Director Científico: Dra. Rosa Deves*

*Director Ejecutivo: Dra. Leonor Varas*

*Coordinador Area Química: Dr. Bernabé L. Rivas*

*Investigadores Area Química: Dr. Rafael García, Dr. Carlos Millán, Dra. Rosa Catalán.*

*Proyecto FONDECYT N° 1050572 (Marzo 2005-marzo 2009)*

*Co-investigador*

*“Materiales Poliméricos hidrofílicos. Síntesis, caracterización y propiedades”*

*Investigador Responsable: Dra. S. Amalia Pooley*

*Investigador Alterno: Dr. Bernabé L. Rivas*

✓ *Proyecto FONDECYT N° 1061018 (Marzo 2006-Marzo 2009)*

*“Obtención de polímeros surfactantes para el desarrollo de nuevas fases pseudoestacionarias para separaciones quirales y aquirales por Cromatografía Electrocinética Micelar”*

*Investigador responsable: Dr. Eduardo Pereira*

*Co-investigador: Dr Bernabé L. Rivas*

✓ *107.05.42*

*“Polímeros Funcionales. Síntesis, Caracterización, Propiedades de retención de Iones Metálicos”*

*Investigador Principal: B.L. Rivas*

*Investigador Alterno: S. A. Pooley*

*Período: Marzo 2007-Marzo 2011*

✓ **Proyecto FONDEF. N°D10I1234 (Noviembre 2011-Noviembre 2014)**

*“Desarrollo de envases para alimentos con propiedades barrera activa/pasiva basados en nanocompuestos termoplásticos” (E)*

*Director del Proyecto: Bernabé L. Rivas*

*Investigador Principal: Mónica Pérez*