

SCIENCO
**SOUTHERN BRAZILIAN JOURNAL
OF CHEMISTRY**

ISSN 0104-5431

**AN INTERNATIONAL FORUM FOR THE RAPID PUBLICATION
OF ORIGINAL SCIENTIFIC ARTICLES DEALING WITH CHEMISTRY
AND RELATED INTERDISCIPLINARY AREAS**

VOLUME FIFTEEN

NUMBER FIFTEEN

DECEMBER 2007

SCIENCO
**SOUTHERN BRAZILIAN JOURNAL
OF CHEMISTRY**

ISSN 0104-5431

**AN INTERNATIONAL FORUM FOR THE RAPID PUBLICATION
OF ORIGINAL SCIENTIFIC ARTICLES DEALING WITH CHEMISTRY
AND RELATED INTERDISCIPLINARY AREAS**

VOLUME FIFTEEN

NUMBER FIFTEEN

DECEMBER 2007

EDITOR

LAVINEL G. IONESCU, *SCIENCO*, Consultoria Científica, Viamão, RS, BRASIL

ASSISTANT EDITOR

LUIS ALCIDES BRANDINI DE BONI, Tchequímica LTDA, Porto Alegre, RS, Brasil.

EDITORIAL BOARD

FARUK NOME AGUILERA, Departamento de Química, Universidade Federal de Santa Catarina, Florianópolis, SC, Brasil

D. BALASUBRAMANIAN, Centre for Cellular and Molecular Biology, Hyderabad, INDIA

HECTOR E. BERTORELLO, Departamento de Química Orgánica, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba, Córdoba, ARGENTINA

AÉCIO P. CHAGAS, Instituto de Química, UNICAMP, Campinas, SP, BRASIL

JUAN JOSÉ COSA, Departamento de Química y Física, Facultad de Ciencias Exactas, Universidad Nacional de Río Cuarto, Río Cuarto, ARGENTINA

GLENN A. CROSBY, Department of Chemistry, Washington State University, Pullman, WA, USA

VITTORIO DEGIORGIO, Dipartimento di Elettronica, Sezione di Fisica Applicata, Università di Pavia, Pavia, ITALIA

JOSE C. TEIXEIRA DIAS, Departamento de Química, Universidade de Coimbra, Coimbra, PORTUGAL

OMAR A. EL SEOUD, Instituto de Química, Universidade de São Paulo, São Paulo, SP, BRASIL

FERNANDO GALEMBECK, Instituto de Química, UNICAMP, Campinas, SP, BRASIL

NISSIM GARTI, Casali Institute of Applied Science, Hebrew University of Jerusalem, Jerusalem, ISRAEL

GASPAR GONZALEZ, Centro de Pesquisa, CENPES-PETROBRAS, Ilha do Fundão, Rio de Janeiro, RJ, BRASIL

YOSHITAKA GUSHIKEM, Instituto de Química, UNICAMP, Campinas, SP, BRASIL

WILLIAM RASE, Department of Chemistry, Texas Tech University, Lubbock, Texas, USA

I. B. IVANOV, Laboratory of Thermodynamics and Physico-chemical Hydrodynamics, Faculty of Chemistry, University of Sofia, Sofia, BULGARIA

IVAN IZQUIERDO, Departamento de Bioquímica, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, BRASIL

V.A. KAMINSKY, Karpov Institute of Physical Chemistry, Moscow, RUSSIA

MICHAEL LAING, Department of Chemistry, University of Natal, Durban, SOUTH AFRICA

EDUARDO LISSI, Departamento de Química, Universidad de Santiago de Chile, Santiago, CHILE

WALTER LWOWSKI, Department of Chemistry, New Mexico State University, Las Cruces, N.M., USA

CRISTINA MANDRAVEL, Catedra de Chimie Fizica, Facultatea de Chimie Universitatea din Bucuresti, Bucuresti, Romania

C. MANOHAR, Bhabha Atomic Research Centre, Chemistry Division, Bombay, INDIA

AYRTON FIGUEIREDO MARTINS, Departamento de Química, Universidade Federal de Santa Maria, Santa Maria, RS, BRASIL

FRED MENDER, Department of Chemistry, Emory University, Atlanta, GA, USA

KASHMIRI LAL MITTAL, Private Consultant, Hopewell Junction, N.Y., USA

ARNO MULLER, Escola de Engenharia, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, BRASIL

JOSE MIGUEL PARERA, Instituto de Investigaciones en Catalisis y Petroquímica, Universidad Nacional del Litoral, Santa Fe, ARGENTINA

LARRY ROMSTED, Department of Chemistry, Rutgers University, Piscataway N.J., USA

GILBERTO FERNANDES DE SA, Departamento de Química Fundamental, Universidade Federal de Pernambuco, Recife, PE, BRASIL

DIMITRIOS SAMIOS, Instituto de Química, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, BRASIL

DIOGENES DOS SANTOS, Department of Molecular Biology, Oxford University, Oxford, ENGLAND.

BEN K. SELINGER, Department of Chemistry, Australian National University, Canberra, AUSTRALIA

KOZO SHINODA, Department of Applied Chemistry, Faculty of Engineering, Yokohama National University, Yokohama, JAPAN

CRISTOFOR I. SIMIONESCU, Academia Romana, Filiala Iasi, Iasi, ROMANIA

BRUNO SZPOGANICZ, Departamento de Química, Universidade Federal de Santa Catarina, Florianópolis, SC, Brasil

UMBERTO TONELLATO, Dipartimento di Chimica Organica, Università degli Studi di Padova, Padova, ITALIA

DIETER VOLLHARDT, Max Planck Institut für Kolloid und Grenzflächenforschung, Berlin, GERMANY

RAOUL ZANA, Institut Charles Sadron, CRM-EAHP, Strassbourg, FRANCE

INFORMATION FOR AUTHORS

The Southern Brazilian Journal of Chemistry - SBJC will publish review articles, original research papers and short communications dealing with chemistry and interdisciplinary areas such as materials science, biotechnology, bioengineering and other multidisciplinary fields.

Articles report the results of a complete study. They should include an Abstract, Introduction describing the known art in the field Experimental or Materials and Methods, Results and Discussion, Acknowledgments (when appropriate) and References.

Short Communications should be limited to 1500 words, including the equivalent space for figures and/or tables and should include an Abstract and concise Experimental.

Manuscripts may be submitted on-line or in triplicate (original and two copies by registered mail) and are received with the understanding that the original has not been submitted for publication elsewhere. It is implicit that all the persons listed as authors have given their approval for the submission of the paper and that permission has also been granted by the employer, when necessary.

Manuscripts must be written in American or British English, single spaced, on A4 sheets (21 cm x 29.5 cm) and one side only and should be numbered beginning with the title page. Type must be 12 Arial or Times New Roman.

Margins of at least 3 cm should be left at the top and bottom and both sides of each page. The first page of the paper should contain only the title of the paper, the name(s) and addressees) of the author(s), an abstract of not more than 250 words and 4-8 keywords. We reserve the right to translate the abstract in Portuguese. Abstracts are required of all papers including reviews and short communications.

Figures and Tables with short explanatory titles, each on a separate sheet, should be adequate for direct reproduction and identified in pencil on the back of each page by Arabic numerals, corresponding to the order they appear in the manuscript. Tables and Figures (BMP or JPG format) may also be included directly in the text when convenient and the article may submitted in a quasi-final form in order to facilitate editorial work.

References should be numbered in the sequence they appear in the text, cited by superior numbers and listed at the end of the paper in the reference section in the numerical order they appear in the text. The style for references is shown below:

1. L. G. Ionescu and D. S. Fung, *J. Chem. Soc. Faraday Trans. I*, 77, 2907-2912 (1981).
2. K. L. Mittal, Ed., "*Solution Chemistry of Surfactants*", Plenum Press, New York (1984), Vols. 1-3, pp. 1-2173.

IUPAC Rules should be used for the name of chemical compounds and preference should be given to SI units.

Authors are invited to send manuscripts by registered air mail to the EDITOR - SBJC, C.P. 15032, Agronomia, Porto Alegre, RS BRASIL 91501, or by e-mail to lavinel@ibest.com.br or lavinel@pop.com.br.

VISIT OUR SITE: <http://www.sbjchem.he.com.br>

SCIENCO **SOUTHERN BRAZILIAN JOURNAL OF CHEMISTRY**

ISSN 0104-5431

The **SOUTHERN BRAZILIAN JOURNAL OF CHEMISTRY – *SCIENCO*** (SOUTH. BRAZ. J. CHEM.) publishes original research articles in chemistry and related interdisciplinary areas and is intended to fill a gap in terms of scientific information for Southern Brazil.

Occasionally the journal will include review papers and articles dealing with chemical education and philosophy and history of science. It will be published mainly in English, with abstracts in Portuguese and only occasional papers in other languages. At the present there are no page charges and the authors will receive twenty five reprints of their papers free of charge.

We have set high standards for the articles to be published by ensuring strong but fair refereeing by at least two reviewers. We hope that this journal will provide a forum for dissemination of high quality research in chemistry and related areas and are open to any questions and suggestions.

The Editor.

SUBSCRIPTION INFORMATION

Brazil and Latin America:

US\$ 70.00 per issue,

Other Countries: US\$ 100.00 per issue,

including air mail delivery. Persons or institutions outside Brazil should send subscription fee payable to Dr. L. G. Ionescu,
c/o SBJC, 8532 Howard Circle, Huntington Beach,
California, USA 92647

MAILING ADDRESS

SOUTHERN BRAZILIAN JOURNAL OF CHEMISTRY

Lavinel G. Ionescu, B.S., M.S., Ph.D., Editor

C.P. 15032, Agronomia

Porto Alegre, RS, BRASIL 91501-970

Tel. 055 51 3485-1820 / 051 55 3485-1711 / 055 51 995-26616 / 055 51997-64159

E-Mail: lavinel@ibest.com.br lavinel@pop.com.br

VISIT OUR SITE: <http://www.sbjchem.he.com.br>

FINANCIAL SUPPORT

SARMISEGETUSA RESEARCH GROUP

SANTA FE, NEW MEXICO, U.S.A.



SOUTHER BRAZILIAN JOURNAL OF CHEMISTRY

ISSN 0104-5431

VOLUME FIFTEEN, NUMBER FIFTEEN

DECEMBER 2007

CONTENTS / CONTEÚDO

A TRIBUTE TO PROF. DR. FARUK JOSÉ NOME AGUILERA ON HIS 60th BIRTHDAY Lavinel G. Ionescu, Luis Alcides Brandini De Boni and Eduardo Goldani.....	1
HYDROLYSIS AND DEUTERATION OF GLYCYLGLYCINE CATALYZED BY DINUCLEAR [BMXDCu ₂] ⁴⁺ COMPLEX Ana Cristina Franzoi, Gledir T. Stein Martins, Sérgio Duvoisin Jr., and Bruno Szpoganicz	15
THE PERIODIC TABLE OF THE ELEMENTS AND THE ASSOCIATED MINERALS: GOLD Lavinel G. Ionescu, Paulo César Pereira das Neves, Flávia Schenato, and Flávio Antônio Bachi.....	29
[Au-S ₄] ^Z AND [Au-O ₂ S ₂] ^Z – TYPE COMPLEX COMPOUNDS RELATED BY ELECTRON-TRANSFER REACTIONS Liana Simona Sbîrnă, Vasilica Mureşan, Sebastian Sbîrnă, Nicolae Mureşan, Florina Ciolan.....	43
CHORMIUM (III) COMPLEXES ANIONS IN THE CHEMICAL ANALYSIS ANAFRANILE DETERMINATION George Brătulescu and Ion Gănescu.....	49
INVESTIGATION OF CARBON STEEL CORROSION IN DILUTED AMMONIACAL MEDIA Adriana Samide, Ion Bibicu, Mircea Preda, Olimpia Rusu, Paul Chirita.....	59
A NEW METHOD OF COAL SEPARATION IN GRANULOMETRIC CLASSES AND THE STUDY OF SOME ANALYTICAL PROPERTIES Paul Atyim, I. Bolocan-Viasu, O. Croitoru. C. Tigae, Al. Popescu, G. Ardelean.....	71
AUTHOR INDEX.....	81