



Revista Boliviana de Química

Rev. Bol. Quim. ISSN 0250-5460
Rev. boliv. quim. ISSN 2078-3949

Bolivian Journal of Chemistry
Vol. 39, No. 5, 2022

Abstracts

OPEN ACCESS JOURNAL
Rapid peer review system
BIMONTHLY EDITION
Digital Object Identifier DOI.

ISSN 0250-5460, edición impresa. Rev. Bol. Quim. ISSN 2078-3949, edición electrónica. Rev. boliv. quim. indexed in Scielo, Scirbo, Google Scholar, Latindex, OAJ and Redalyc

Vol. 39, No. 5, 2022, diciembre 30, publicación del
INSTITUTO DE INVESTIGACIONES QUÍMICAS, IIQ, CCQ
FACULTAD DE CIENCIAS PURAS Y NATURALES
UNIVERSIDAD MAYOR DE SAN ANDRÉS

Front-cover design: Andrés Bravo Canedo



1

REVISTA BOLIVIANA DE QUÍMICA

ISSN 0250-5460 Rev. Bol. Quim. Paper edition

ISSN 2078-3949 Rev. boliv. quim. Electronic edition

Xóchitl F. de la Rosa Reyna et al. RBQ Vol.39, No.5, pp. 155-163, 2022

Received 10 02 2022 39(5); Nov./Dec. 2022

Accepted 12 15 2022

Published 12 30 2022; DOI:10.34098/2078-3949.39.5.1

Antocianinas, propiedades funcionales y potenciales aplicaciones terapéuticas



**ANTOCIANINAS, PROPIEDADES
FUNCIONALES Y POTENCIALES
APLICACIONES TERAPÉUTICAS**

Received 10 02 2022

Accepted 12 15 2022

Published 12 30 2022

Vol. 39, No.5, pp. 155-163, Nov./Dic.2022

Revista Boliviana de Química

39(5), 155-163, Nov./Dec. 2022

Bolivian Journal of Chemistry

DOI: 10.34098/2078-3949.39.5.1



Short Review

Peer-reviewed

Xóchitl F. de la Rosa Reyna¹, Israel Garcia León², José Hernández Mendoza², Jaime Morales Baquera², Jesús Di Carlo Quiroz Velásquez^{2,*}.

¹ Laboratorio de Bioinformática, Centro de Biotecnología Genómica del Instituto Politécnico Nacional. Boulevard del Maestro, s/n esq. Elías Piña, Col. Narciso Mendoza, Cd. Reynosa, Tamaulipas, México, C.P. 88710.

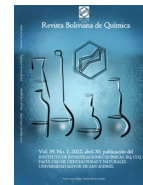
² Laboratorio de Biotecnología Experimental, Centro de Biotecnología Genómica del Instituto Politécnico Nacional. Boulevard del Maestro, s/n esq. Elías Piña, Col. Narciso Mendoza, Cd. Reynosa, Tamaulipas, México, C.P. 88710.

Keywords: *Anthocyanins, Nutraceutical, Phenolic compounds*

Palabras clave: *Antocianinas, Nutraceutico, Compuestos fenólicos*

ABSTRACT

Anthocyanins, functional properties, and potential therapeutic applications. The chronic degenerative diseases with the greatest impact due to their high mortality rates are cancer, diabetes, and cardiac syndromes, mainly. Because the sustained use of drugs of synthetic origin leads in the vast majority of cases to the appearance of secondary or collateral effects such as renal, hepatic or cardiac dysfunction, their application until the end of the cure could be ineffective and in some cases pernicious. Traditional medicine based on drugs of plant origin, has been and continues to be a therapeutic alternative for the cure or treatment of diseases. Among the chemical components of medicinal plants, anthocyanins are a type of flavonoids, well known for their antioxidant properties, ideal for the prevention or treatment of the aforementioned diseases. Experimental methods developed to examine the effectiveness of anthocyanins on chronic degenerative diseases have shown potential results good enough for incorporating these compounds into formulations combined with other drugs, including synthetic ones. The functional properties of anthocyanins can provide added value when they are included in drug (therapeutic) or food (nutraceutical) formulations, thus going beyond their common use as natural colorants.



**EVALUACIÓN HIDROQUÍMICA
PRELIMINAR DE RESERVORIOS DE
AGUA PARA CONSUMO HUMANO
PRÓXIMO A ACTIVIDADES MINERAS
EN LA MICROCUENCA HAMPATURI
EN LA PAZ, BOLIVIA**

Received 08 03 2022

Accepted 12 15 2022

Published 12 30 2022

Vol. 39, No.5, pp. 164-174, Nov./Dic.2022

Revista Boliviana de Química

39(5), 164-174, Nov./Dec. 2022

Bolivian Journal of Chemistry

DOI: 10.34098/2078-3949.39.5.2



Full original article

Peer-reviewed

Romel Emil Aruquipa Buitre*, María Isabel Chambi Tapia, Israel Quino Lima, Oswaldo Eduardo Ramos Ramos

Hydrochemistry Laboratory, Instituto de Investigaciones Químicas IIQ, Chemical Sciences Department, Facultad de Ciencias Puras y Naturales FCPN, Universidad Mayor de San Andrés UMSA, P.O. Box 303, Calle Andrés Bello s/n, Ciudad Universitaria Cota Cota, phone +59122792238, La Paz, Bolivia, <https://iiq-umsa-bo>, <http://cienciasquimicas.umsa.bo/>

Keywords: Hampaturi, Drinking water, Water reservoirs, Mining activities, Hydrochemistry

Palabras clave: Hampaturi, Agua de consumo, Reservorios de agua, Actividad minera, Hidroquímica

ABSTRACT

Preliminary hydro chemical evaluation of water reservoirs close to mining activities in the Hampaturi micro-basin in La Paz, Bolivia. The preliminary hydrochemical evaluation of the water reservoirs for human consumption close to mining activities in the Hampaturi micro-basin in La Paz, Bolivia, administered by the Public Social Water and Sanitation Company (EPSAS in Spanish) was carried out. The results of the physicochemical field and laboratory analyses show two kinds of water. Meltwater from elevated Andean glaciers with a neutral to slightly alkaline pH, low electrical conductivity (EC) values and

low total dissolved solids (STD) values with high dissolved oxygen saturation (DO) values, and low concentrations of Na^+ , K^+ , Ca^{2+} , Mg^{2+} , Cl^- , F^- , NO_3^- y SO_4^{2-} , classifying them according to the WHO as demineralized waters. The second class of water from sampling points outside the dam system and corresponding to the Hampaturi River, shows evidence of mining tributaries that provide high concentrations of the aforementioned analytical parameters. Therefore, according to the Regulation on Water Contamination of Law No. 1333, they are classified as unfit for human consumption..



3



A COLLATERAL APPROACH ON THE ^{13}C NMR ANALYSIS OF PSEUDOPELLETIERINE, AN ALKALOID FROM POMEGRANATE

Received 11 30 2020
Accepted 12 11 2022
Published 12 30 2022

Vol. 39, No.5, pp. 175-182, Nov./Dic.2022
Revista Boliviana de Química

39(5), 175-182, Nov./Dic. 2022
Bolivian Journal of Chemistry
DOI: 10.34098/2078-3949.39.5.3



Analytical short review

Peer-reviewed

José A. Bravo^{1,*}, José L. Vila²

¹Natural Product Laboratory, Phytochemistry, Instituto de Investigaciones Químicas IIQ, Chemical Sciences Department, Facultad de Ciencias Puras y Naturales FCPN, Universidad Mayor de San Andres UMSA, P.O. Box 303, Calle Andrés Bello s/n, Ciudad Universitaria Cota Cota, phone +59122792238, La Paz, Bolivia, jabravo@umsa.bo, joseabravo@outlook.com, www.umsa.bo

²Natural Product Laboratory, Synthesis, Hemisynthesis and Green Chemistry, Instituto de Investigaciones Químicas IIQ, Chemical Sciences Department, Facultad de Ciencias Puras y Naturales FCPN, Universidad Mayor de San Andres UMSA, P.O. Box 303, Calle Andrés Bello s/n, Ciudad Universitaria Cota Cota, phone +59122772269, La Paz, Bolivia, jlvila@umsa.bo, joselu62@hotmail.com, www.umsa.bo

Keywords: ^{13}C NMR, Pseudopelletierine, Pomegranate

Palabras clave: RMN ^{13}C , Pseudopelletierina, Granada.

ABSTRACT

We reviewed a subchapter of “Natural Products, Isolation, Structure Elucidation, History” by D. Sicker et al. regarding the study of Pseudopelletierine (9-Methyl-9-azabimicyclo[3.3.1]nonan-3-one). We boarded the NMR data in the subchapter with didactical purposes, doing an analysis of ^{13}C NMR chemical shifts in a spectral/structural approach. We established the structure by doing a ^{13}C NMR “Pure Shift” analysis if the term is worth.