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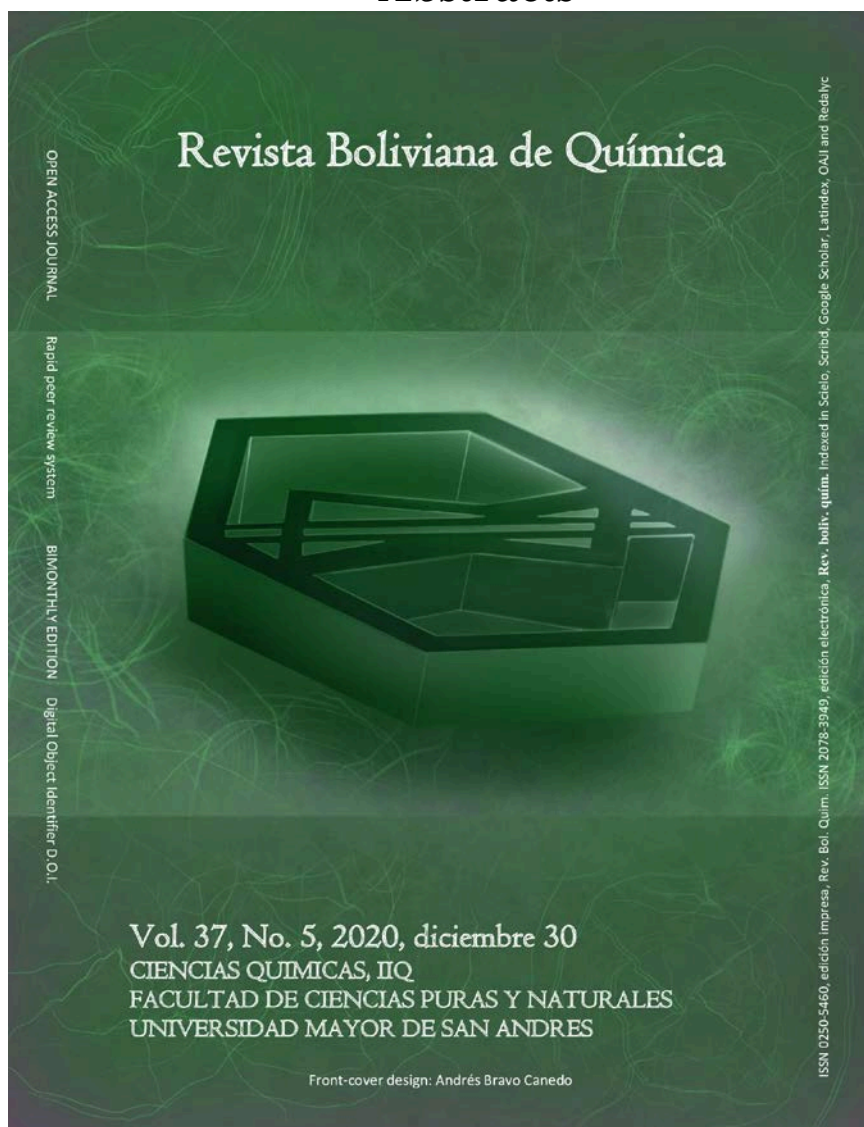
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Abstracts



**VARIATION IN CONCENTRATION
OF FLAVONOIDS AND
CHLOROPHYLL, AND CHANGES ON
MORPHOLOGY AND FOLIAR
ANATOMY, DUE TO VISIBLE (PAR)
OR ULTRAVIOLET (UVA, UVB)
RADIATION IN *BACCHARIS
LATIFOLIA***

**VARIACIÓN EN LA
CONCENTRACIÓN DE FLAVONOIDES
Y CLOROFILA, Y CAMBIOS EN LA
MORFOLOGÍA Y ANATOMÍA FOLIAR,
DEBIDOS A RADIACIÓN VISIBLE
(PAR) O ULTRAVIOLETA (UVA, UVB)
EN *BACCHARIS LATIFOLIA***

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Full original article

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Keywords: *Baccharis latifolia*, UV, PAR, Total flavonoids, Chlorophyll.

Palabras clave: *Baccharis latifolia*, UV, PAR, Flavonoides totales, Clorofila.

ABSTRACT

Baccharis latifolia is a plant of medicinal and industrial interest with an abundance of flavonoids within its leaves. The present study focused on identifying the changes in total flavonoids, chlorophyll concentration, plant growth, and leaf anatomy at different wavelengths (UVA, UVB and PAR) under controlled conditions. Statistical analyzes were carried

out using nonparametric Kruskal-Wallis and post hoc Bonferroni tests. The results suggest that favorable conditions for the production of flavonoids occur when exposed to UVB50 treatment (50% UVB with respect to daily solar radiation), while it is observed that low levels of PAR play an important role in reducing the flavonoids. The chlorophyll concentration is favored by PAR and UVA50 treatments; however, it is negatively influenced by UVB100 and UVB150. Vegetative growth does not show strong differences when comparing PAR treatments, however, it does present better results in relation to treatments that include UVA or UVB radiation. The foliar anatomy shows strong differences between the treatments and is favored mainly by the UVA100 and UVA150 treatments, while it is negatively affected by the UVB100 and UVB150. The observed results show that *Baccharis latifolia* is a plastic species that can accommodate various levels of light and wavelength, however, it presents differentiated responses in growth, physiology and foliar anatomy that affect the concentration of compounds.

**MEASUREMENT OF
MORPHOLOGICAL AND BIOMASS
CHANGES, AND OF THE OXALIC ACID
CONTENTS, AFTER IR AND UV
RADIATION IN *OXALIS
TRIANGULARIS***

**MEDICIÓN DE LOS CAMBIOS
MORFOLÓGICOS Y DE BIOMASA, Y
DEL CONTENIDO DE ÁCIDO OXÁLICO,
DESPUÉS DE IRRADIACIÓN IR Y UV
EN *OXALIS TRIANGULARIS***

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Keywords: *Oxalic acid, Biomass, Oxalis triangularis, Infrared radiation, Ultraviolet radiation.*

Palabras clave: *Ácido oxálico, Biomasa, Oxalis triangularis, Radiación infrarroja, Radiación ultravioleta.*

ABSTRACT

In the face of climate change, the effect of solar radiation on morphology, biomass and different chemical compounds present in plants is of interest for food security. The present study seeks to contribute to knowledge of the effect of infrared (IR) and ultraviolet (UV-A, UV-B) radiation on oxalic acid concentration, biomass and morphology in *Oxalis triangularis* (Oxalidaceae). The species was exposed to visible light with IR, UV-A or UV-B radiation separately and a control group exposed only to visible light was established. Five weeks later, the number of leaves

was counted and morphological changes were observed. Also, fresh and dry weights of leaves and rhizomes were obtained from each specimen, and the quantification of oxalic acid was performed using UV/Visible spectrophotometry. The results show that biomass, height and number of leaves increase with exposure to infrared radiation, while no significant differences in these parameters are found with UVA radiation. With UVB radiation, a depigmentation of the leaflet and a certain glossiness of the leaflets due to a probable increase in waxes and a decrease in petiole height were observed. With respect to oxalic acid concentration, no significant differences were observed with the different treatments, although a tendency to decrease with IR and increase with UVB was seen. These findings may have implications for the nutritional value of plants containing oxalic acid, for this reason further studies are needed.

EXTRACTION, SEPARATION, AND IDENTIFICATION OF THE CAROTENOID-XANTHOPYLL, NEOXANTHIN, BY HPLC-MS FROM THE FOOD SPECIES *INGA INGOIDES* (RICH) WILLD, PACAY, COLLECTED IN COROICO, BOLIVIA

EXTRACCIÓN, SEPARACIÓN, E IDENTIFICACIÓN DEL CAROTENOIDE Y XANTÓFILO NEOXANTINA POR HPLC-MS DE LA ESPECIE ALIMENTICA *INGA INGOIDES* (RICH) WILLD, PACAY, COLECTADA EN COROICO, BOLIVIA

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Short report

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Keywords: *Neoxanthin, Carotenoids, Pacay, Inga ingoides.*

Palabras clave: *Neoxantina, Carotenoides, Pacay, Inga ingoides.*

ABSTRACT

The present work describes the isolation and characterization of neoxanthin obtained in the aerial part of the plant species *Inga ingoides* collected in the town of Coroico in the Department of La Paz, Bolivia. The plant was subjected to extraction processes and column chromatography on silica gel, with a mobile phase of petroleum ether / ethyl acetate with an increasing polar gradient. The major fraction of reddish colour was chromatographed by high performance liquid chromatography coupled to mass spectrometry HPLC_MS, being determined the presence of neoxanthin.

THERMOCHEMICAL CONVERSION AND MICROSTRUCTURAL ANALYSIS OF SELF-REDUCING BRIQUETTES MADE OF HUSK RESULTING FROM LAMINATION COMING FROM THE FORMING PROCESS OF STEEL IN HOT (MILL SCALE), AND RECYCLED GRAPHITE

CONVERSION TERMOQUÍMICA Y ANÁLISIS MICROESTRUCTURAL DE BRIQUETAS AUTO-REDUCTORAS HECHAS DE CÁSCARILLA RESULTANTE DE LA LAMINACIÓN PROVENIENTE DEL PROCESO DE CONFORMADO DEL ACERO EN CALIENTE (MILL SCALE), Y GRAFITO RECICLADO

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Full original article

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Keywords: *Self-reducing briquettes, Husk, Lamination, Metal conversion.*

Palabras clave: *Briquetas auto-reductoras, Cascarilla, Laminación, Conversión metálica.*

ABSTRACT

This paper shows the results of an investigation carried out to recycle the husk resulting from lamination coming from the (Mill Scale) forming process of steel in hot, in order to explore the possibility of obtaining sponge iron with a high metallic content. The experimentation consisted of forming self-reducing briquettes by mixing iron-oxide and graphite, and conducting them to a self-reducing process, varying the temperature from 900 to 1050°C for a minimum period of 30 min. expandable to 90 min, depending of the case. The husk and the reduced products obtained were characterized by applying mineralogical analysis techniques using fluorescence and X-ray diffraction, and chemical and mineralogical composition using scanning electron microscopy (SEM). In the reduced products the amount of mass loss and the change in the proportion of real weight were determined. Additionally, the determination of the degree of metallic conversion was possible by means of the analytical technique of the analysis of metallic Fe and total Fe for each sample. The results showed that at the conditions: [90 min – 1050°C - 13% of graphite, the degree of metal conversion is equal to 99.9%], and for: [30 min – 1050°C - 20.7% of graphite, a 95% of metal conversion is reached], and for: [90 min – 1050°C - 20.7% of graphite, a 94.4% of metal conversion is reached]. In the case of the maximum degree of metal conversion, the formation of iron could be observed from the coalescing of metal points (whiskers) that leads to formation of dense and compact phases.