EVALUACIÓN DE LA ACIDEZ SUPERFICIAL DE ÓXIDOS DE CIRCONIO MODIFICADOS CON TUNGSTENO Y MOLIBDENO

Keywords: circonia, circonia-tugsteno, circonia-molibdeno, isomerización de n-hexano

ABSTRACT

Circonium hidroxide was prepared by sol-gel method and was impregnated with molibdenum and tungstenum to study thier influence on the acidity, especific surface area and crystalline structure. Ti(OH)₄ impregnated with molibdenum was calcined at 400 and 600°C while the material impregnated with tungstenum was calcined at 625°C. The maximum acid stregth was determined by potentiometric titration with n-butylamine, the surface area was determined by nitrogen physisorption and crystalline structure was identified by XRD. The modification of circonia with molybdenum and tungstenum promuve high surface area stabilized the tetragonal phase and inresed the streng of acid sites. The circonia modified with molibdenum was tested en the isomerization of n-hexane ontaining 22% of conversion and the selectivity was oriented to the 2 and 3 methylpentanes formation.

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INTERACTION OF α-AMINOBUTENOIC ACID WITH DIVALENT BERYLLIUM(II) AND COBALT(II) IN CHEMICAL AND BIOLOGICAL SYSTEMS
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Keywords: Paper ionophoretic technique; overall mobility; beryllium(II) complexes; cobalt(II) complexes; α-aminobutenoic acid, stability constants.

ABSTRACT

Paper electrophoresis has been applied to the study of metal complexes in solution and attempts have been made to determine the stability constants of complex species. The proportion of ionic species of α-aminobutenoic acid was varied by changing the pH of background electrolyte. The stability constants of ML and ML₂ complexes of Be(II) - α-aminobutenoic and Co(II) - α-aminobutenoic acid complexes were found to be (7.19 ± 0.09, 5.91 ± 0.11) and (4.19 ± 0.03, 3.57 ± 0.07) (logarithm stability constant values), respectively at ionic strength 0.1 Mol L⁻¹ and a temperature of 35°C.
**ACTIVIDAD ANTIFUNGICA in Vitro DE EXTRACTOS POLARES DE PLANTAS DEL GENERO BACCHARIS SOBRE FITOPATOGENOS**

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**Keywords:** Fitopatógenos, biocontroladores, *Aspergillus niger*, *Phytophthora palmivora*, *Baccharis sp.* in Vitro.

**ABSTRACT**

Reseaching for natural alternatives to control plant diseases, polar extracts were made of *Baccharis* genus plants. The inhibitory effect of polar extracts *in Vitro* was evaluated, as mycelia growth inhibition against phytopathogenic fungi: *Phytophthora palmivora* and *Aspergillus niger*. The results have shown a significant effect of the extracts of *B. latifolia* on reducing the growth of pathogenic fungi.

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**HARINAS COMPUESTAS DE SORGO-TRIGO PARA PANIFICACIÓN**

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**ABSTRACT**

A wheat-sorghum composite flour products study

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**NUEVO MICRO-BIOENSAYO DE ECOTOXICIDAD DE EXTRACTOS ACUOSOS DE PLANTAS MEDICINALES SOBRE DAPHNIA MAGNA SP.**

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**Keywords:** Micro Bio-ensayo, ecotoxicidad, plantas medicinales, *Daphnia magna* sp.

**ABSTRACT**

Toxicity of medical plants used in traditional medical was evaluates by new static microtechnics bioassay. Results show toxic effects of extracts of *Chenopodium quinoa*, *Urtica* sp., *Achyrocline sp.*, *B. genistiloides* y *B. latifolia*, household detergent and ethanol on *Daphnia sp.* (invertebrate crustacea), depending on dose and exposure time.

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**CONCENTRADOS DE SAPONINA DE CHENOPODIUM QUINOA Y DE CAIPHORA ANDINA: ALTERNATIVAS COMO BIOCONTROLADORES DE HONGOS FITOPATÓGENOS**

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**ABSTRACT**

Toxicity of medicinal plants used in traditional medical was evaluates by new static microtechnics bioassay. Results show toxic effects of extracts of *Chenopodium quinoa*, *Urtica* sp., *Achyrocline sp.*, *B. genistiloides* y *B. latifolia*, household detergent and ethanol on *Daphnia sp.* (invertebrate crustacea), depending on dose and exposure time.
**Keywords:** Biocontroladores, fitopatógeno, Saponinas-cascaras de quinua-Chenopodium quinoa, Caiphora andina

**ABSTRACT**

The biocontroller activity of the extracts from *Caiphora andina* (PA) M-17 and a saponin isolated from the skin of *Chenopodium quinoa* Wild. (M-16) were assessed. The decreasing in the rate of growth of the fungal phytopathogen during 12 days was used as indicator of the biocontroller activity of the plant extract. The biocontroller activity was compared against the synthetic fungicide Sistane used as positive control at 1 mL/L. The M-16 showed an inhibition of 42% of the *Aspergillus flavus*. When the plant extracts M-16 and M-17 were used against *Ulocladium* spp an inhibition of 35% and 36% was achieved respectively. *Fusarium* spp was susceptible in 47%. *Aspergillus flavus* was inhibited in 42% during 4 days by saponin M-16. Thus, this research shows the potential use of plant extracts including saponins as controller agents of phytopathogenic fungi.

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**ALUMINAS MESOPOROSAS OBTENIDAS POR LA RUTA DE LOS ATRANOS PARA SU APLICACIÓN COMO MATRICES EN CRAQUEO CATALÍTICO**

**Keywords:** Ruta de los atranos, mesoporosos, craqueo catalítico

**ABSTRACT**

The atrane route was used to synthesize aluminas that showed specific surface areas in the 150 – 275 m$^2$/g range and average pore sizes in the 60 – 180 Å range after calcination. Different techniques were used to characterize the aluminas (IR, XRD, 27Al MAS-NMR, N2 adsorption). Crystalline micro domains of AlOOH boehmite type were formed in the uncalcined samples that increased their size as a function of the proportion of water in the synthesis, because water favors the hydrolysis and condensation of the Al[N(CH2-CH2-O)3]2H3 complex. The calcination treatment induced the crystalline restructuration from boehmite-type to γ – alumina-type structures. The activities of the aluminas prepared by the atrane route, as indicated by the TIPB conversion at 500 °C and short reaction times from 12 to 30 s, were somewhat smaller than those observed in conventional aluminas. The apparent kinetic parameters in a simple, first order model were similar, suggesting that accessibility limitations from the pore systems were not present. The properties shown by these aluminas synthesized by the atrane route indicated a preliminary appropriate condition for being used as FCC catalyst matrices.

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**NUEVOS OXIDOS DE TITANIO DOPADOS (Yb, Nd, La y Li) PARA LA REDUCCION FOTOCATALITICA DE CROMO HEXAVALENTE**

**Keywords:** TiO$_2$-doped, Lanthanides, Atrane Route, Hexavalent Chromium, Photocatalysis.

**ABSTRACT**

TiO$_2$-pure and TiO$_2$-doped with Yb, Nd, La and Li were synthesized by the atrane route, all oxides were found with porosity in the range of mesoporous. Several techniques of characterization have been applied: X-ray diffraction (XRD), adsorption-desorption (BET), diffuse reflectance spectroscopy (DRS) and transmission
electronic microscopy (TEM). The materials were tested as photocatalysts for the reduction of Cr(VI) in presence of an electron donor, ethylenediaminetetraacetic acid (EDTA). Incorporation of Nd and Yb on TiO$_2$ shift the energy of the band gap toward visible region, these oxides showed anatase phase crystalline and suitable adsorption properties for Cr(VI) and EDTA, resulting in higher photoactivities compared to pure titania and La and Li-dopants.

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**GAS TO LIQUIDS, A TECHNOLOGY FOR NATURAL GAS INDUSTRIALIZATION IN BOLIVIA: A REVIEW**

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*Keywords:* Bolivian natural gas, Gas-to-Liquids (GTL), Synthesis Gas, Fischer-Tropsch, Hydrocracking

**ABSTRACT**

Gas-to-Liquids (GTL) technology converts natural gas, through Fischer-Tropsch synthesis, into liquid and ultra-clean hydrocarbons such as light oils, kerosene, naphtha, diesel, and wax. Bolivia has natural gas reserves that reach 48.7 trillion cubic feet and produces near 40.0 million cubic meters per day, from which around 88% are exported to Brazil and Argentina. Although these considerable amounts of natural gas reserves and production, the country undergoes a shortage of diesel which cannot be solved using conventional refining processes due to the light nature of its crude oil. Thus, GTL process seems to be a promising solution for Bolivia’s diesel oil problems, at the same time that its natural gas reserves could be monetized. Although GTL can be considered as a well proved and developed technology, there are several aspects along the main processing steps (Synthesis gas generation, Fischer-Tropsch synthesis, and Product upgrading) to be considered at the time of implementing a GTL plant. The aim of this article is to give an overall view of some relevant issues related to Gas-to-Liquids technology as an option for natural gas industrialization in Bolivia, and also provide a landscape of Bolivian natural gas industry.

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**CATALIZADORES Ni-Cu/MCM-41 SINTETIZADOS POR LA RUTA DE LOS ATRANOS PARA EL REFORMADO DE ETANOL**

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*Keywords:* Ni-Cu/SiO$_2$ mesoporous, Atrane Route, Ethanol Reforming.

**ABSTRACT**

MCM–41 SiO$_2$ and Cu-SiO$_2$ mesoporous oxides were synthesized by the atrane route with different proportions of copper; these materials were impregnated with nickel via wetness incipient. The catalysts obtained were characterized by X-Ray Diffraction, IR, TEM, UV-Vis, BET porosimetry, ICP, and TPR-H$_2$. Catalytic activity was evaluated in the reforming of ethanol. It has been observed that the generation of a high dispersion of copper oxide facilitates the reduction of the metals. Also, the selectivity of hydrogen increases with the amount of copper in the support; this can be explained due to the influence of copper on the reaction mechanism.

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