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TITULO DE LA PONENCIA

Espectroscopía Raman como herramienta analítica en la detección y discriminación de carotenoides endolíticos en muestras de yeso. Implicación en la búsqueda de vida en Marte

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PALABRAS CLAVE

Carotenoides, Endolíticos, Yeso, Espectroscopía Raman, Radiación UV, Marte.

CONTENIDO DEL RESUMEN

La espectroscopía Raman es una técnica analítica que permite identificar huellas químicas en materiales orgánicos e inorgánicos. Puesto que no requiere de un tratamiento químico o mecánico previo, es una técnica ideal para el investigar biomarcadores en misiones planetarias. En regiones desérticas calientes y frías, minerales translúcidos como el yeso actúan como escudo y microhábitat para las comunidades microbianas endolíticas, protegiéndolas contra la irradiación excesiva y los cambios de desecación. Además, al ser traslúcido permite a la radiación que activa la fotosíntesis penetrar a través del sustrato mineral. Por este motivo los

microorganismos endolíticos a menudo forman pigmentos que los protegen de la radiación UV y que también están involucrados en procesos fotosintéticos. En este trabajo, nosotros utilizamos un láser de argón de 532 nm para identificar y clasificar varios tipos de carotenoides endolíticos en muestras de yeso recolectadas en tres localidades de Colombia: Los Santos (Santander) Chaparral (Tolima) y Sáchica, (Boyacá). Detectamos Deinoxanthin, Canthaxanthin, Astaxanthina y β-carotene entre otros, lo cual abre la posibilidad de correlacionar los resultados de la espectroscopía Raman con la identificación de microorganismos obtenida a través de cultivos y clasificación óptica. El yeso es un mineral que vale la pena ser investigado desde una perspectiva geobiológica, pues está presente en algunas regiones de Marte, como el Gale Crater o En los campos de dunas de la capa de hielo polar norte.

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