Actividad antibacteriana de extractos etanólicos obtenidos de la especie *Senna alata* (L.) Roxb contra *Staphylococcus aureus y Klebsiella pneumoniae*

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RESUMEN

La resistencia bacteriana ha dejado obsoleto el uso de algunos antibióticos. Por lo tanto, se hace imperativo la búsqueda de nuevas moléculas o farmacóforos con propiedades antibacterianas. Los productos naturales son una fuente promisoria de nuevas sustancias, considerándose de alto valor agregado para la comunidad científica en el conocimiento etnofarmacológico de especies vegetales del Caribe colombiano. EL objetivo de este trabajo fue evaluar la actividad antibacteriana de extractos etanólicos obtenidos de la hoja, tallo y raíz de *Senna alata*, contra *Staphylococcus aureus y Klebsiella pneumoniae* mediante los métodos se microdilución en caldo establecido por el CLSI 2022 y Kirby-Bauer, ambos métodos estandarizados previamente por nuestro equipo de trabajo. La caracterización fitoquímica mostró la presencia de alcaloides, cumarinas, flavonoides, triterpenos, esteroles, saponinas y taninos en todo el extracto obtenido de las hojas, raíz y tallo de *S. alata* (L.) Roxb. Los resultados de actividad antibacteriana mostraron porcentajes de inhibición leve y nula. De los tres extractos estudiados, el extracto de tallo presentó leve actividad antibacteriana con 22.1 ± 9.4 y 13.1 ± 7.4 %, frente a *S. aureus y K. pneumoniae*. respectivamente. A diferencias de los extractos de hojas y raíz que presentaron actividad nula.

Estos resultados se contrastaron usando el método Kirby-Bauer mediante el uso de sensidiscos a los cuales se le impregnó 5,000 µg por disco de cada extracto, realizando pruebas por triplicado para cada bacteria. Se evidenció en los ensayos en el extracto de tallo mostraba un halo de inhibición mínimo el cual no se podía ver con gran facilidad, a diferencia de los otros extractos de hoja y raíz que no se observó ningún resultado positivo.

Palabras clave: Actividad antibacteriana, *Senna alata*, metabolitos secundarios, extractos etanolicos, resistencia de antibióticos.

ABSTRACT

Bacterial resistance has rendered the use of some antibiotics obsolete. Therefore, the search for new molecules or pharmacophores with antibacterial properties is imperative. Natural products are a promising source of new substances and the ethnopharmacological knowledge of Colombian Caribbean plant species is considered of high added value for the scientific community. The objective of this work was to evaluate the antibacterial activity of ethanolic extracts obtained from the leaf, stem and root of *Senna alata* against *Staphylococcus aureus* and *Klebsiella pneumoniae* using the broth microdilution methods established by CLSI 2022 and Kirby-Bauer, both methods previously standardized by our team. Phytochemical characterization showed the presence of alkaloids, coumarins, flavonoids, triterpenes, sterols, saponins and tannins in the whole extract obtained from the leaves, root and stem of *S. alata* (L.) Roxb. The results of antibacterial activity showed slight and null inhibition percentages. Of the three extracts studied, the stem extract showed mild antibacterial activity with 22.1 ± 9.4 and 13.1 ± 7.4 %, against *S. aureus* and *K. pneumoniae*, respectively. In contrast to the leaf and root extracts, which presented null activity. These results were contrasted using the Kirby-Bauer method by means of the use of sensidiscs to which 5,000 µg per disc of each extract was impregnated, performing tests in triplicate for each bacterium. It was evident in the tests that the stem extract showed a minimal inhibition halo which could not be seen very easily, unlike the other extracts of leaf and root which did not show any positive result.

Keywords: Antibacterial activity, *Senna alata*, secondary metabolites, ethanolic extracts, antibiotic resistance.

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Anexo