

Phytochemical and Antimicrobial Analysis of some Citrus Fruits Juices from Sindh Pakistan against Selected Pathogens

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SUMMARY. The main objective of this study was to analyze phyto-chemical constituents from fresh citrus fruits and perform antimicrobial activity by K.B Disc Diffusion method and to compare zone of inhibition with standard antimicrobial drug. The results of phytochemical and antimicrobial analysis were observed from the citrus plants including *Citrus paradisi*, *Citrus reticulata*, *Citrus sinensis*, *Citrus aurantifolia*, *Citrus limon*, *Citrus aurantium* and *Citrus jambhiri*. Presence of various macromolecules such as tannins, phenols, proteins, amino acids, glycosides, steroids, flavonoids, carbohydrates, alkaloids, cholesterol, terpenoids and saponins were observed during photochemical analysis. Antimicrobial analysis revealed the zone of inhibition which was observed for these citrus fruits against *E. coli*, *S. paratyphi B*, *Shigella sonnei* and *V. cholerae*. Antifungal activity was found more in lemons and limes as compared to oranges. It was concluded that the fresh citrus fruit juices of Sindh contain potent antimicrobial compounds and they can be used as alternative medicines especially against enteric pathogens.

RESUMEN. El objetivo principal de este estudio fue analizar los componentes fitoquímicos de los cítricos frescos y evaluar su actividad antimicrobiana mediante el método de difusión de disco K.B y comparar la zona de inhibición con el fármaco antimicrobiano estándar. Los resultados del análisis fitoquímico y antimicrobiano se observaron en las plantas de cítricos, incluidos *Citrus paradisi*, *Citrus reticulata*, *Citrus sinensis*, *Citrus aurantifolia*, *Citrus limon*, *Citrus aurantium* y *Citrus jambhiri*. Durante el análisis fotoquímico se observó la presencia de varias macromoléculas como taninos, fenoles, proteínas, aminoácidos, glucósidos, esteroides, flavonoides, carbohidratos, alcaloides, colesterol, terpenoides y saponinas. El análisis antimicrobiano reveló la zona de inhibición que se observó para estos cítricos contra *E. coli*, *S. paratyphi B*, *Shigella sonnei* y *V. cholerae*. La actividad antifúngica se encontró más en limones y limas en comparación con las naranjas. Se concluyó que los jugos frescos de cítricos de Sindh contienen potentes compuestos antimicrobianos y pueden usarse como medicamentos alternativos, especialmente contra los patógenos entéricos.

KEY WORDS: citrus fruits, K.B disc diffusion method squeezer, pathogens, zone of inhibition.

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