

Development of Sulfonamides of Contemporary Drugs as Anticancer Agents

Rana A. NADEEM¹, Muhammad A. QADIR¹,
Mahmood AHMED^{1*}, Imran SAJID² & Tanzeela G. SHAHZADY³

¹ *Institute of Chemistry, University of the Punjab, Lahore 54590, Pakistan*

² *Department of Microbiology & Molecular Genetics, University of the Punjab, Lahore 54590, Pakistan*

³ *Department of Chemistry, Lahore Garrison University, Lahore, Pakistan*

SUMMARY. In the present study, six new cephalosporin conjugated sulfonamides were synthesized and characterized them by spectral studies including FTIR, ¹HNMR and MS. The new compounds were evaluated against the Vero and Hep G2 cancer cell lines for their anticancer activities. The compounds with lower cLogP value showed more antiproliferative effect due their more cell permeability. Compound **6**, ceftazidime conjugated with 8-quinoline benzene sulfonyl was most active against both the cell lines with IC₅₀ 3.82 μM (Vero) and 5.77 μM (Hep G2) whereas its activity was comparable with 5-fluorouracil used as reference drug (IC₅₀ = 2.84 μM) against Vero cell line.

RESUMEN. En el presente estudio, se sintetizaron seis nuevas sulfonamidas conjugadas con cefalosporina y se caracterizaron por estudios espectrales que incluyen FTIR, ¹HNMR y MS. Los nuevos compuestos se evaluaron contra las líneas celulares de cáncer Vero y Hep G2 sobre sus actividades contra el cáncer. Los compuestos con menor valor de cLogP mostraron más efecto antiproliferativo debido a su mayor permeabilidad celular. El compuesto **6**, ceftazidima conjugado con 8-quinolin-benceno-sulfonilo fue el más activo contra las líneas celulares con IC₅₀ 3.82 μM (Vero) y 5.77 μM (Hep G2) mientras que su actividad fue comparable con 5-fluorouracilo utilizado como fármaco de referencia (IC₅₀ = 2.84 μM) contra la línea celular Vero.

KEY WORDS: anticancer agents, Hep G2, heterocyclics, sulfonamides, Vero.

* Author to whom correspondence should be addressed. *E-mail:* mahmoodresearchscholar@gmail.com