

Facile Synthesis and Investigation of Antimicrobial Potential of Dihydropyrimidine-2-thione Scaffolds

Hummera RAFIQUE ¹*, Kubra BIBI ¹, Aamer SAEED ²,
Ehsan U. MUGHAL ¹, Amara MUMTAZ ³ & Kiran HINA ⁴

¹ *Department of Chemistry, University of Gujrat, 50700-Gujrat, Pakistan*

² *Department of Chemistry, Quaid-i-Azam University, 45320-Islamabad, Pakistan*

³ *Department of Chemistry, COMSATS University, Abbottabad Campus, 22060-Abbottabad, Pakistan*

⁴ *Department of Environmental Sciences, University of Gujrat, 50700-Gujrat, Pakistan*

SUMMARY. Various chalcones have been synthesized by using Claisen condensation reaction between different aromatic aldehydes and ketones in mole ratio (1:1). These chalcones served as precursor for the synthesis of substituted dihydropyrimidine-2-thione heterocycles. The targeted compounds were prepared by Michael addition between α,β -unsaturated ketones and thiourea in the presence of a base. All the synthesized compounds were characterized by physical data and spectroscopic techniques. These were also evaluated for their antimicrobial potential in order to investigate their importance in the pharmaceutical field.

RESUMEN. Se han sintetizado varias chalconas usando la reacción de condensación de Claisen entre diferentes aldehídos aromáticos y cetonas en relación molar (1:1). Estas chalconas sirvieron como precursora para la síntesis de heterociclos de dihidropirimidina-2-tiona sustituidos. Los compuestos se prepararon mediante la adición de Michael entre cetonas α,β -insaturadas y tiourea en presencia de una base. Todos los compuestos sintetizados se caracterizaron por datos físicos y técnicas espectroscópicas. También se evaluó su potencial antimicrobiano para investigar su importancia en el campo farmacéutico.

KEY WORDS: antibacterial activity, antifungal activity, chalcones precursors, dihydropyrimidine-2-thione derivatives.

* Author to whom correspondence should be addressed. *E-mail:* humera_rafiq@uog.edu.pk