



## “One-Pot” Synthesis of Novel 4-aryl-1,4-dihydropyridines and Investigate their Anti-cervical Cancer Activity

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**SUMMARY.** Series of novel 4-aryl-1,4-dihydropyridines (**1-6**) were synthesized via a “one-pot” three-component reaction by condensing aromatic aldehydes, ammonium acetate and ethyl acetoacetate in the presence of 4-(dimethylamino)pyridine (DMAP) as a highly efficient homogenous catalyst. The structures of the synthesized compounds have been deduced from IR, <sup>1</sup>H NMR, HRMS, and single crystal X-ray crystallography. Additionally, the newly synthesized compounds were evaluated to identify the molecular characteristics contributing to their cytotoxicity. They were tested against four human cervical cancer cell lines including HeLa, C33A, CaSki and C4-1 with the MTT assay. The experimental results of anti-cervical cancer activity showed that compared with compounds **1-5**, compound **6** with thiophene ring exhibited better anti-cervical cancer activity.

**RESUMEN.** Se sintetizaron series de 4-aryl-1,4-dihidropiridinas (**1-6**) novedosas mediante una reacción de tres componentes de “un solo recipiente” mediante condensación de aldehídos aromáticos, acetato de amonio y acetoacetato de etilo en presencia de 4-(dimetilamino) piridina. (DMAP) como catalizador homogéneo altamente eficiente. Las estructuras de los compuestos sintetizados se dedujeron de los datos de IR, <sup>1</sup>H NMR, HRMS y cristalografía de rayos X de cristal único. Además, los compuestos recién sintetizados se evaluaron para identificar las características moleculares que contribuyen a su citotoxicidad y se probaron contra cuatro líneas celulares de cáncer de cuello de útero humano, incluyendo HeLa, C33A, CaSki y C4-1 con el ensayo de MTT. Los resultados experimentales de la actividad del cáncer anti-cervical mostraron que, en comparación con los compuestos **1-5**, el compuesto **6** con anillo de tiofeno mostró una mejor actividad contra el cáncer cérvico-uterino.

**KEY WORDS:** anti-cervical cancer, 4-aryl-1,4-dihydropyridines, X-ray.

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