



**PERIÓDICO TCHÊ QUÍMICA**

**ARTIGO ORIGINAL**

**SÍNTESE E ATIVIDADE ANTITUMORAL DE NOVAS CUMARINAS MULTIFUNCIONAIS**

**SYNTHESIS AND ANTITUMOR ACTIVITY OF NEW MULTIFUNCTIONAL COUMARINS**

## ABSTRACT

Cancer constitutes one of the most severe public health menaces worldwide. It is imperative to synthesize new compounds and explore their antitumor activity to find a potential resolution to this health problem. Synthesis of new scaffolds and evaluating their antitumor activity is a relevant approach for combating cancer development. Coumarins can exhibit diverse biological activities, and one of these is the antitumor activity. This study aimed to synthesize new coumarins by grafting their precursors to the aromatic amines via Schiff base formation and evaluating their introductory antitumor activity. New multifunctional coumarins (MC1-MC9) were prepared by integrating a functionalized coumarin with different toluidine derivatives via a Schiff-base linkage. Spectral characterization inspired by FTIR,  $^1\text{H}$ - and  $^{13}\text{C}$ - NMR spectroscopies has established the chemical structures of the synthesized products. The antitumor activity was explored *in vitro* versus four dominant human cancer lines, including HeLa, SKG, MCF-7, and AMN3. The outcomes acquired from the cell viability assay inspected by applying MTT dye have revealed that the synthesized multifunctional coumarins, particularly MC3, have a hopeful activity. It can be concluded that a similar trend of activity against the test cell lines was observed for the synthesized coumarins, with the best action being versus MCF-7 and the least one versus AMN3. This study not only affords a new scaffold of a significant antitumor activity but also provides some insights into its structure-activity relationship.