

SYNTHESIS AND BIOLOGICAL ACTIVITY OF NEW COUMARIN DERIVATIVE

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Coumarins are a large group of heterocyclic compounds with important pharmacological properties: antibacterial, antifungal, antioxidant, and antitumor.¹

Synthesis of 3-(1-(4-hydroxyphenylamino)ethylidene)-chroman-2,4-dione was successfully completed by the conventional method. The reaction mixtures of 3-acetyl-4-hydroxycoumarin (0.0014 mol) and equimolar amount 4-aminophenol (0.0014 mol) in 50 mL methanol was refluxed and mixed for 3h. The obtained yellow crystals were filtered, air-dried, and recrystallized from ethanol. The obtained compound was characterized using infrared (IR), nuclear magnetic resonance (NMR) spectroscopy and elemental microanalysis.

The antimicrobial and antitumor activity of newly synthesized compound was investigated. Antimicrobial activity was tested by determining the minimum inhibitory concentrations (MIC) and minimum microbicidal concentration (MMC) using the microdilution plate method with resazurin. The antimicrobial activity of this compound was tested against 17 microorganisms. The antitumor activity of new coumarin derivative was determined by the MTT assay on the breast cancer (MDA-MB-231). Based on the obtained results, it can be concluded that the investigated compound is a promising antimicrobial agent.

References

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