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# Microwave synthesis of coumarin-maltol hybrids as potent antitumor and anti-microbial drugs: An approach to molecular docking and DNA cleavage studies

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**ABSTRACT**

A series of new coumarin–maltol hybrids (**2a–2k**) were selectively prepared in high yields under microwave irradiation. All the newly synthesized compounds were characterized by elemental and spectroscopic analysis. The synthesized compounds were evaluated for their *in-vitro* anticancer activity against two human cancer cell lines viz., A-549 (human lung carcinoma) and HeLa (human cervical cancer). Among the tested, compounds **(2a)** and **(2d)** were found to be potent cytotoxic with $IC_{50}$ values in the range of 2.47 - 4.26 μM on A-549 and HeLa cancer cells. DNA cleavage study by gel electrophoresis method revealed that the compounds **(2a)**, **(2j)** and **(2k)** were found to cleave the DNA completely, as no traces of DNA were found. Furthermore, Molecular docking was performed against 4TZK enzyme of *E. coli*, which showed good binding interactions and is in agreement with the *in vitro* anti-microbial results.