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RESEARCH

Anticancer and Antimicrobial Activities of Quercetin-CuhNFs and Quercetin-CohNFs on MDA-MB-231 (Breast Cancer)

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Abstract

In this study, a green process is proposed for the synthesis of hybrid nanoflowers (hNFs) using copper (II) (Cu(II)) and cobalt (II) (Co(II)) metal ions as inorganic ingredients and quercetin as the organic ingredient. SEM, EDX, FTIR, XRD, mapping were used for the characterization of the synthesized hNFs. Then, their anticancer and antimicrobial activities were investigated for the first time. Antimicrobial activities of of quercetin and hNFs were examined against *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, and *Candida albicans*. It was observed that Cobalt hybrid nanoflowers (CohNFs) were effective against *Staphylococcus aureus* and that copper hybrid nanoflowers (CuhNFs) and quercetin showed similar activity in other fungi and bacteria species. For the anticancer activity, the MDA-MB-231 (breast cancer) cell line was used. Cytotoxic evaluations determined that CuhNFs may be a safer therapeutic alternative compared to others. These results may contribute to the development of effective next-generation preparations for MDA-MB-231 problems of nanoflowers synthesized using quercetin.

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