Design and Synthesis and Biological evaluation of Novel Curcumin Analogs with anticipated anticancer activity

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Abstract

Six novel curcumin analogs were designed, synthesized with 3,5-dibenzylidenepiperidin-4-one core moiety and three of them were evaluated for their antitumor activities in 5 different cell lines; [ovarian cancer (A2780), renal adenocarcinoma (ACHN), prostate cancer (PC-3), colorectal cancer (Hct-116) and a leukemic monocyte lymphoma (U937-GTB)]. Also in silico molecular docking was performed on the six curcumin analogs to predict their binding affinity to tubulin enzyme and their ability to destabilize microtubules through interaction energy docking scores compared to that of podophyllotoxin. Three of newly synthesized compounds were tested in vitro for their effect on tubulin polymerization.

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