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**SYNTHESIS, STRUCTURAL ELUCIDATION, AND IN VITRO  
ANTIPROLIFERATIVE AND APOPTOTIC EFFECTS  
OF A NICKEL-CURCUMIN COMPLEX**

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Curcumin (Fig. 1) is the principal curcuminoid of turmeric, which is a member of the ginger family. Turmeric is the yellow-orange powder made from the ground root of a specially cultivated variety of Curcuma plant. It is one of the most versatile natural medicines and one of the most important medicines in the Indian and Chinese medical traditions. Curcumin is a diarylheptanoid that incorporates several functional groups. The aromatic ring systems, which are phenols, are connected by two  $\alpha,\beta$ -unsaturated carbonyl groups. Recently, it has been reported to possess anti-inflammatory, antioxidation and antiviral activities. Now, attention has been focused on its antitumor activity. It was found to induce apoptosis of a wide variety of tumor cells including mice sarcoma S180 cells, human colon carcinoma HT-29 cells, human renal carcinoma 293 cells, human liver carcinoma HepG2 cells etc [1]. The success of cisplatin has triggered intensive work for discovery of new metal-based anticancer drugs [2]. In this study, we evaluated the anti-proliferative and apoptotic effects of Nickel complexes including curcumin against human cervix epithelial carcinoma (HeLa), cell line and using cisplatin as a comparative standard by MTT assay. Our results presented herein provide experimental evidence that Nickel-Curcumin complex induce apoptosis in cancer cell lines. Our flow cytometry results confirm that, this complex showed a high population of apoptotic cell higher than cisplatin at the same concentration and could induce apoptosis of HeLa cancer cells.

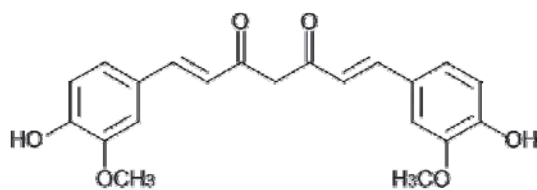


fig. 1: the structure of Curcumin

### References

- [1] Jiang, M. C.; Yang Yen, H. F.; Yen, J. J.; et al. *Nutr Cancer*. **1996**, *26*, 111-120.
- [2] Garbutcheon-Singh, M. B.; Grant, M. P.; Harper, B. W.; Krause-Heuer, A. M.; Manohar, M.; Orkey, N.; Aldrich-Wright, J. R. *Current Topics in Med. Chem.* **2011**, *11*, 521-542.