

Cytotoxicity of Vincristine on the 5637 Cell Line Is Enhanced by Combination with Conferone

Vajiheh Neshati^a, Maryam M. Matin^{a,b,*}, Mehrdad Iranshahi^c, Ahmad R. Bahrami^{a,b}, Javad Behravan^c, Samaneh Mollazadeh^a, and Fatemeh Behnam Rassouli^a

^a Institute of Biotechnology, Ferdowsi University of Mashhad, Mashhad, Iran.
Fax: +98 (0) 51 18 79 64 16. E-mail: Matin@um.ac.ir

^b Department of Biology, Faculty of Sciences, Ferdowsi University of Mashhad, Mashhad, Iran

^c Department of Pharmacognosy and Biotechnology, Biotechnology Research Center, Faculty of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran

* Author for correspondence and reprint requests

Z. Naturforsch. **64c**, 317–322 (2009); received September 9/November 17, 2008

Bladder cancer is one of the most common cancers worldwide, with the highest incidence in industrialized countries. There are three major histological subtypes of bladder cancer: transitional cell carcinoma (TCC) (>90%), squamous cell carcinoma (<10%) and adenocarcinoma (1–2%). The present study was carried out to assess the effects of conferone, a sesquiterpene coumarin isolated from *Ferula badrakema*, on a TCC subline, 5637 cells. In order to test the effects of conferone, 5637 cells were treated with different concentrations (16, 32, 64, 128 $\mu\text{g/ml}$) of conferone. The results indicated that conferone did not have any significant cytotoxic effect on these neoplastic cells. To determine the combining effects, the cells were cultured in the presence of different concentrations of conferone (16, 32, 64, 128 $\mu\text{g/ml}$) and vincristine (30, 40, 50 $\mu\text{g/ml}$) in combination. The morphological changes were then observed and cytotoxicity effects were studied using the MTT assay 24, 48 and 72 h following drug administration. The cells were more rounded and granulated after treatments with both drugs in comparison to vincristine only. The results of the MTT assay confirmed the morphological observations. After 48 h of combined treatment with 40 $\mu\text{g/ml}$ vincristine and 16 $\mu\text{g/ml}$ conferone, the cytotoxicity of vincristine was increased by 23.6%.

Key words: Conferone, Vincristine, 5637 Cell Line