Antitumor Activity Of Some Benzimidazole Derivatives

Öztekin Algül, Nefise Özlen Şahin, Ebru Derici Eker, Özden Tarı

Mersin University, Faculty of Pharmacy, aDepartment of Pharmaceutical Chemistry, bDepartment of Pharmaceutical Biotechnology, Yenisehir Campus, Mersin, 33169, Turkey.

nefisesahin@gmail.com

One of the most important aims in medicinal chemistry is to synthesis new heterocyclic compounds with antitumor activity. Leukemia is the most common cancer type seen worldwide and remains the most frequent cause of malignancy-associated death. Although there are some effective anticancer drugs in the market, even the most efficient use of chemotherapeutic drug applications is limited due to its serious damage to noncancerous healthy tissues [1]. Thus, synthesis of new potent and selective anticancer drugs are urgently required [2]. The benzimidazole nucleus is an important pharmacophore in drug discovery. Substituted benzimidazole derivatives show various therapeutic effects such as antimicrobial [3-4], antiproliferative [5], anti-inflammatory [6], antiviral, and antineoplastic [7] activities. Taking that into account, a novel series of the derivatives of 1,2-diarylbenzimidazole has been synthesized and evaluated for their cytotoxic activity against the cells of human cancer cell lines, namely K-562 (myelogenous leukemia). Cells were divided into groups as following positive control (methotrexate) and newly synthesized derivatives. Cell viability were detected in 24th and 48th hours of the cell culture incubation. In conclusion, among the compounds tested against K-562 cell line, compounds 1, 3 and 5 showed potent activity.

References: