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Extended Abstract

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Medicinal Chemistry : 2018 In-vitro Antiproliferative Activity Study of 2, 4, 5-Triphenyl-1H-imidazole Derivatives - Rajendra P Pawar

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2, 4, 5-triphenyl-1H-imidazole of Various Substituted Derivatives have been synthesized and evaluated for antiproliferative activity in vitro against non-small cell lung carcinoma cell lines The compound 2-iodo-6-methoxy-4- (4, 5). -diphenyl-1H-imidazole-2-yl) phenol (6f) (IC50: 15 μM) has been shown to be the most promising, which inhibits growth of cancer cells.

A structure of nitrogen atom containing heterocyclic compounds has shown their pharmacological interest and belongs to the family of imidazoles. The substituted 2,4,5-triaryl-1H-imidazoles have acquired remarketable unification due to their wide range of biological activities. The imidazole ring is one of the most important structures found in many natural products and pharmacological compounds, a benzodiazepine antagonist. They have reduced platelet aggregation in many animal and human species.

Biochemical processes in imidazoles play a vital role. The imidazole compounds have shown estrogen receptors and cytotoxic cyclooxygenase inhibitors, antifungal, antihelmitic, analgesic, fungicide, anti-inflammatory, antithrombotic. The substituted imidazole has new therapeutic activities and controlled processes. In addition to these, they are also known for their pesticidal and herbicidal activity. Imidazoles are the central structures of various biological systems such as histidine, histamine and biotin, which are active drug components in many drug molecules (eg losartan, olmesartan and eprosartan).

Nowadays, scientists are trying to develop a new synthetic methodology for reducing the risks of using human and animal species. Certain methods are reported for the preparation of pharmacologically and synthetically substituted trisubstituted imidazoles. In our previous research work on the development of synthesis methodologies such as sulfated tin oxide: a catalyst, and substituted benzimidazole units of bioactivity and synthesis. Microwaves were studied using polyethylene glycol in imidazole trisubstituted synthesis for a non-catalytic efficacy protocol. Room temperature has been reported in solvent-free conditions Effective synthesis of substituted 2,4,5-triaryl imidazoles.

2-substituted 2-imidazolines of easy microwave-assisted synthesis have been reported. Certain synthetic methods have been studied, in particular catalyzed 2,4,5-triaryl-1h-imidazole derivatives of efficient synthesis by ultrasound irradiation in aqueous media. The same type of biological screening is carried out by our investigators such as; Ionic liquid has favored the synthesis, antibacterial and antiproliferative activity of new derivatives of ph-aminophosphonates in vitro and in mitochondrial-mediated apoptosis of cancer cells in sedin humerus leaves and methanolic extracts.

A549 non-small cell lung carcinoma cells were maintained in 10% heat inactivated FBS (Life Technologies Inc. USA) and 50 Mg / mL gentamicin (Himedia, India) containing RPMI 1640 (Life Technologies Inc. USA). The cells were cultured at a temperature of 37 ° C. with an incubator supplied with 5% CO 2. When they reach a confluence of 65% to 80%, the cells were trypsinized with a 0.25% TPVG solution (Himedia, India), Growth tests for the density desired at the counted and aliquots. All experiments were carried out using cultured cells for 48 h.

The effect of A549 cells on the viability of the compounds was determined by an MTT cell proliferation test. The cells were spread to ~ 1 × 103 cells in each well of 96-well plates with 100 μL of RPMI 1640 medium. Compounds of 0 to 20 compoundM were added to each well. Each concentration of imidazole compounds was repeated in 8 wells. Cell viability was determined after 24 h of incubation in a CO2 incubator at 37 ° C. MTT (5 mg / ml in PBS) was added to each well and incubated for 4 h. Absorbance was recorded at 490 nm for all Multiscan Ascent 96-well plates (Thermo Inc). The inhibitory effect of imidazole compounds on cell growth was evaluated as a percentage of cell viability. Treatment without Cells is more than 80% viable. The% viability of cancer cells was analyzed in 2,4,5-triphenyl-1Himidazoles.

Examined the effect of various 2,4,5-triphenyl-1Himidazole compounds on cultured carcinoma cells that had melanoma cells incubated with 20 μM derivatives of 2, 4, 5-triphenyl-1H-imidazole for 24 hours and their viability. was assessed. Cell viability was evaluated by MTT test at 24 h after growth at 37 ° C.% Viability of Cancerous Cellulose Analyzed in 2, 4, 5-triphenyl-1H-imidazoles. A time and concentration analysis was carried out at a concentration of 20 concentrationM of the new imidazole derivative.

In the present study, some new immunoassays were evaluated for antiproliferative activity in vitro against non-small cell lung carcinoma-A549 cell lines by the MTT assay method. The compounds tested 6f, 7g, 9i, 12k, 13l, 18m, 19n and 21o showed significant growth inhibitory effects. The compound 2-iodo-6-methoxy-4- (4,5-diphenyl-1H-imidazole-2-yl) phenol (6f) (IC50: 15 μM) has been shown to have the most promising, inhibitory growth of cellulose cancerous. 90.33% of the total population). This study provides an innovative idea on the antiproliferative activity of 2, 4, 5-triphenyl-1H-imidazole derivatives in vitro and provides valuable information for further development of more potent anticancer agents.

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