

Editor's Note: Medicinal Chemistry

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Medicinal chemistry deals with the design, optimization and development of drugs, the interaction of drugs with targets, their metabolism and the ultimate effects (and adverse effects) that the compounds elicit in the system being studied. Medicinal chemistry encompasses principles of organic chemistry, biochemistry, and biology. The Medicinal Chemistry journal publishes timely and important articles outlining cutting edge research in the field. The current issue deals with a variety of critical issues. Topics covered include the development of specific drugs to counter microbial resistance, the formulation of novel drugs with appreciable antimicrobial activity, the physicochemical characterization of medicinal strawberry, elucidation of the effects of acupuncture on gene expression in neural cells of rats, as well as the anti-proliferative effects of synthetic compounds on human cell lines. Antibiotic resistance is a major concern in recent years. This is especially so among cancer patients who are already immune-compromised. Vira and Bhat [1] have noted that carbapenem-resistant New Delhi Metallo-beta-lactamase-1 (NDM-1) producing gram negative bacteria were prevalent in cancer patients. They have suggested formulation of precise, sensitive and specific antibiotics based on sound drug design and development for effective eradication of the bugs. Reddy et al. [2] reported formulation of 3,5-disubstituted pyrazoles and isoxazoles wherein, fluoro substituted thiophene linked compounds 12b and 18b displayed *in vitro* activity against *Bacillus subtilis* and *Aspergillus niger*. An electron withdrawing fluoro substituent on the aromatic ring conferred higher antimicrobial activity. Fruit from the strawberry tree is known to have several medicinal properties and to be a good source of antioxidants. Based on physicochemical characterization of the fruit, Abbas-Aksil et al. [3] studied the water absorption of lyophilized Algerian *Arbutus unedo* L. fruit powder. Their work revealed that the monolayer moisture content of the lyophilized berry can be used to evaluate shelf stability and the energy efficiency of the drying process. The Wnt/ β -catenin signaling pathway plays important role in regulation of neural stem cells. Based on western blot and Real-Time Fluorescent Quantitative Polymerase Chain Reaction (RTFQ PCR), Wu et al. [4]

studied the effect of Chinese traditional acupuncture on the mRNA/protein expression of Wnt1 in brain tissue of rats with intracerebral hemorrhages and observed a promoting effect. Mitosis inhibitors, via their effect on tubulin functioning, are potent anti-cancer agents. Bai et al. [5] have evaluated the anti-proliferative effects of dinitrodiphenyl ether derivatives on human MCF-7, A549 and MDA-MB-231 cell lines. They found that compound 3b had maximum activity on par with colchicine against MCF-7. Macrocyclic polyamines are valuable in therapeutic and diagnostic applications. Using solid phase synthesis, Arabuli et al. [6] synthesized and purified small peptide cyclins and 3,4-dihydroxyphenylalanine (DOPA) derivatives and observed that toxicity against human liver cells was less than against kidney cells. The studies presented in this issue of the journal represent novel, important, and significant contributions to the field of medicinal chemistry and are significant in furthering the cause of improved human health.

References

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