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Editorial

Editorial on New Analytical Insights into Treatment of Chronic Diseases

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Over the past few decades, there has been substantial progress in the chemical analysis methods and techniques of pharmaceutical entities. The role of International Pharmacopoeias and guidelines has gained more prominence with even greater recognition and attention. Particularly, the focus on the development of biopharmaceuticals has increased over the past few years. Consequently, there is greater demand for most recent and advanced knowledge of analytical pharmaceutical chemistry among pharmacy students and analytical chemists. Efforts are being made across several laboratories on development of new and advanced analytical techniques in titration; chromatography, electrophoresis and spectroscopy as the number of officially validated method gradually increase. Pharmaceutica Analytica Acta has been focusing on publishing the most recent and trending research activities addressing the emerging analytical challenges in evaluation and characterization of pharmaceutical components through different stages of drug development including drug discovery as active raw molecule, different phases of clinical development, in finished product, manufacture as well as quality control. The current issue of Pharmaceutica Chemica Acta focuses on one natural drug component and chemically synthesizes analogues of tyrosine inhibitors and presents their characteristic structural and functional properties. These components have great potential in the treatment and cure of prevailing chronic disease such as Alzheimer's disease and Cancer.

Alzheimer's disease is a neurodegenerative disease that particularly affects older individuals. It is characterized by memory loss and behaviour deterioration. At biochemical level, oxidative stress leads to the damage of important biomolecules such as nucleic acids and proteins in brain causing such condition [1]. Traditional herbal treatment is considered to have lesser adverse side effects. Therefore, the focus is on the underlying mechanisms and molecular components involved in traditional treatment. Rutin (rutoside, quercetin-3-rutinoside/sophorin) is a citrus flavonoid glycoside found mainly in buckwheat, have properties such as prevention of neuroinflammation, promotion of neural crest survival and anti-Alzheimer activity in addition to other health benefits [2]. Mustafa [3] has presented an updated perspective of rutin as a potential therapeutic agent for the treatment of Alzheimer's disease and emphasized that the neuroprotective activity is primarily due to anti-oxidant and anti-inflammatory properties. With the ability to cross blood brain barrier, rutin has been reported to enhance the rigidity of membranes, decrease fibril formation, decreases plaque aggregation, decrease in brain interleukins, improve cognition, and these observations are based on experimental animal model studies. It was reported that rapid metabolism of flavonoids which is a major drawback, can be limited by methoxylation. The report also mentions about the nanoparticle based targeted delivery of rutin to the brain tissue.

In silico studies are conducted in order to design the drugs with appropriate molecular conformation and model the interactions with the target macromolecules. Based on clinical studies it was shown that imatinib inhibits tyrosine kinase which is important step for cancer treatment. Hussein et al. [4] have employed GOLD program to predict the binding and inhibitory activity as well as chemically synthesized imatinib analogues and characterized using various techniques and recommended their biological evaluation.

The scholarly information presented in the current issue are of immense significance in development of safe and effective treatment and management of Alzheimer's diseases as well as in synthesis, optimization and characterization of novel drug analogues for safe and effective cancer treatment.

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