



## Biological Evaluation of Pharmacologically Active Novel Heterocycles

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### DESCRIPTION

Medicinal chemistry is the branch of chemistry which deals with interdisciplinary science which incorporate fundamentals and application of biology, chemistry, computer, molecular pharmacology, molecular biology, biostatistics etc. The Modern research in the medicinal chemistry which acts as backbone of pharmaceutical industry covers design, synthesis and optimization of novel chemical compounds that has describable therapeutic activity. As there is emergence of new diseases, exponential growth of genomic and proteomic data, development in biological and medical science, increase in cases of drug and multidrug resistance and monitoring of pharmacokinetics and pharmacodynamic parameters which indicates drug safety and efficacy the drug discovery and development process is highly challenging now.

Heterocyclic compounds that mostly studied in medicinal chemistry have variety of clinical activity and most of the drug molecules contain different kind of heterocyclic nucleic in their structure. Heterocyclic nucleus like Imidazole is the one of the most exploited class of heterocyclic scaffold from the field medicinal chemistry to get diverse class of bioactive compounds from Imidazole series. There are variety natural as well as synthetic sources for Imidazole containing bioactive molecules having medicinal value. There are various Imidazole derivatives having biological activities such as antibacterial, antifungal, antiviral, anti-malarial, anticancer, antioxidant, anti-inflammatory, antipsychotic, antidepressant, anti-protazoal, anti-tubercular, anti-hypertensive, anti-leishmanial ACE inhibitors, diuretics and muscle relaxant activities etc. The recent studies of Pyrimidine heterocycles suggest that synthesized novel derivatives have diversity of pharmacological activities such as antifungal, antibacterial, anti-viral, anti-cancer, anti-malarial, analgesic anti-inflammatory, anti-hypertensive and anti-oxidant activity.

Pyrazole is the vital class of heterocyclic compounds from the medicinal chemistry they have natural as well as synthetic origin for diversity of medicinal compounds. The recent reports of Quinazoline heterocycles suggest that synthesized novel derivatives have diversity of pharmacological activities such as antifungal, antibacterial, anti-viral, anti-cancer, anti-malarial, analgesic anti-inflammatory, anti-hypertensive and anti-oxidant activity. It is very complex multi-cellular organism and found in all habitant with most of them live on land. They do not have ability to make their own food. As it is opportunists it obtains its nutrients from wild variety of sources and lives in wild range of environmental conditions. There are five phyla of fungi such as Chytridiomycota, Zygomycota, Glomeromycota, Ascomycota and Basidiomycota. Ascomycetes are pathogenic to plants and animals, including humans. They cause the infections like athlete's foot, ringworm and ergotism, which cause vomiting, convulsions, hallucinations and sometimes even death. Mycosis is a fungal disease to human it is common and numerous physiological and climatic condition responsible for it. Mycotic infection to humankind is of several types such as Candidiasis, Cryptococcosis, Aspergillosis, Coccidioidomycosis, Histoplasmosis, Blastomycosis and Pneumocystis pneumonia.

### CONCLUSION

Candida is yeast found in superficial layer of skin, mucous membranes and in the intestinal tract. Overgrowth of Candida causes the infection such as oropharyngeal candidiasis, vaginal candidiasis. It can cause the serious infection and may affect vital organs such as blood, heart, brain, eyes, bones and other parts of the body. Aspergillosis is common fungus found around were numerous Aspergillus spores breathe by living organism without getting any infection except those people whose immunity is compromised in certain disease conditions may get serious consequences such as inflammation of lungs and sinuses.

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