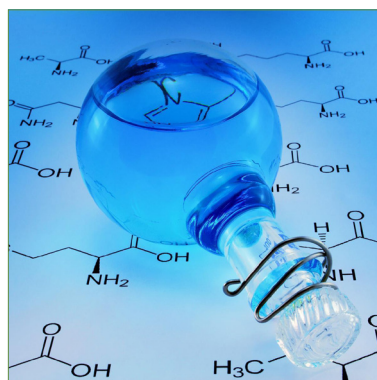


Scientific Tracks & Sessions
February 18, 2019

Organic Chemistry 2019
Green Chemistry 2019



International Conference on
Organic and Inorganic Chemistry
8th World Congress on
Green Chemistry and Technology

February 18-19, 2019 | Paris, France

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Targeting quadruplex nucleic acids: From chemical biology tools to drug prototypes

Marie-Paule Teulade-Fichou
CNRS, France

For many years our research efforts have been focused on the design of small molecules for probing nucleic acid structures. Our targets are more specifically tetra helical secondary structures such as G-quadruplexes (G4) that can be found in Guanine-rich regions. These structures are involved in various genomic dysfunctions and may ultimately cause genetic instability related to cancer development. Our primary aim is to provide chemical biology tools for a better understanding of the roles of these structures. Our secondary aim is to evaluate the anticancer therapeutic potential of quadruplex-targeted agents.

A large number of compounds have been developed for targeting quadruplexes, but few display the criteria of selectivity required for in-cell probing. We have contributed to develop the bisquinolinium phenanthroline compounds (PhenDC) that

rank amongst the best G4 probes both in terms of affinity and selectivity and which are usable in yeast and mammalian cells. We will give a short overview of recent chemical developments of these agents, of their use for probing quadruplex formation in cells and of their anticancer drug properties.

Speaker Biography

Marie-Paule Teulade-Fichou has completed her first PhD (Pharmacology) in 1984 from D Diderot University and her second PhD (Organic Chemistry) in 1986 from P&M Curie University, Paris. She is the Director of the department "Chemistry Modelling and Imaging for Biology" at the Institut Curie, Orsay, France. Currently she is working as CNRS research Director and leader of the team "Structure and Fluorescence Probes for Nucleic Acids". She has over 180 publications that have been cited over 7000 times and her publication H-index is 45.

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ESIPT based hydroxy-aryl benzimidazoles/ schiff bases as Chromofluorescent sensor and logic devices

Vijay Luxami

Thapar Institute of Engineering & Technology, India

Proton transfer is very fundamental process, occurs in a large variety of chemical reactions as well as in biological systems such as acid-base neutralization and enzymatic reactions. Excited state intramolecular proton transfer (ESIPT) is one studied experimentally and theoretically due to its applications in molecular fluorescence probes, luminescent materials, UV stabilizers, OLEDs and molecular logic gates. In general, the ESIPT process requires hydrogen bond between proton donor (-OH, -NH₂, or -NHR etc.) and proton acceptor groups (-C=O, -N= etc.), which must be at interacting distance to each other in a molecule. ESIPT process depends upon the distance of hydrogen bonding i.e. separation between the H-acceptor and donor atoms in molecule. The distance may change depending upon the ring size of system such as 5-membered, 6-membered or 7-membered.

In the present presentation, synthesis of various hydroxyl-aryl benzimidazoles/schiff bases will be discussed for exploration of ESIPT phenomenon. These moieties exhibited excited enol and keto tautomeric emission bands. The presence of anions

and metal ions has been realized by prohibiting ESIPT through coordination or deprotonation induced by metal and anions with ESIPT centers, resulting in detectable spectral change. Presence of substituent, extended conjugation on ESIPT centers further affects the keto enol tautomerism and thus fine tunes the emission channels. The stimuli induced bathochromic or hypsochromic shift of these normal and ESIPT based emission channels further open new emission channels and thus provided opportunity for simultaneous sensing of multiple analytes, biological interactions, miniaturization of logic gates.

Speaker Biography

Vijay Luxami has completed her PhD from Guru Nanak Dev University, USA. She is the associate professor of Thapar Institute of Engineering & Technology, India. She is working on synthesis and organic compounds and supramolecular chemistry. She has more than 60 publications in reputed referred journals and has publication H-index is 18 and has been serving as reviewers' member of reputed Journals.

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Molecular hybridization: Novel methodology for the investigation of biological active heterocyclic moieties

Kamaldeep Paul

Thapar Institute of Engineering & Technology, India

Molecular hybridization is a strategy of rational design of ligands or prototypes based on the recognition of pharmacophoric sub-units in the molecular structure of two or more known bioactive derivatives which, through the adequate fusion of these sub-units, lead to the design of new hybrid architectures. Hybrid drugs are basically designed to counterbalance the known side effects associated with the other hybrid part or to amplify its effect through action on another bio target or to interact with multiple targets as one single molecule lowering the risk of drug-drug interactions and minimizing the drug resistance. Heterocyclic and fused heterocyclic compounds for chemical classes have been identified through molecular biology, molecular modelling, drug designing, empirical screening and rational drug development for evaluation of anticancer agents during the past decades. Purine, quinazoline, s-triazine, imidazopyrazine, benzimidazole and naphthalimide are most pervasive heterocyclic ring systems found in nature and are pharmaceutically important classes of compounds. In medicinal chemistry, these motifs have attracted

a great deal of research interest due to their preponderance in pharmaceutically indispensable compounds. Thus, new hybrids molecules by the combination of imidazopyrazine and benzimidazole as well as naphthalimide and benzimidazole have been synthesized. These hybrid molecules are then evaluated in vitro for 60 human cancer cell lines for one dose and five doses. The mechanism of possible activity of these compounds is further evaluated with DNA for their interaction studies using UV-visible and fluorescence spectroscopy.

Speaker Biography

Kamaldeep Paul has received his MSc degree from Department of Pharmaceutical Sciences in 2000, and PhD in Synthetic Organic Chemistry from Department of Chemistry, Guru Nanak Dev University, Amritsar in 2006. He is working as an Associate Professor in School of Chemistry and Biochemistry, Thapar University, Patiala, India. His area of research is Synthetic Organic and Medicinal Chemistry where his research is broadly focused on multistep synthesis of heterocyclic molecules and their in vitro evaluation for anticancer activity. He has published more than 60 papers in reputed journals and has been serving as reviewers of repute.

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Purification of natural clays using physicochemical process. Application for preparation of a new ultrafiltration membrane for Red 80 removal from aqueous solutions

Hanae Ouaddari

University of Hassan II, Morocco

This paper describes the protocol and the optimization of a purification procedure of two various types of Moroccan clay materials: Marl (smectite-rich clay) of Fez smooth (A) and rough (B).

The purification method was investigated. The impurities were removed prior to separating fine particles. The chemical purification was carried out following a precise protocol in order to eliminate the various impurities (carbonates, iron oxides and organic matter) without affecting the clay minerals. Our approach is based on following and control of this several operations by using a set of analyzes, such as X-Ray Diffraction and Infra-Red (DRX and IR) and imaging microscopic such as Scanning Electron Microscope and Transmission Electron Microscope (MEB or SEM and TEM). As application, the purified fraction of clay is used as deposit on membrane supports prepared from raw clay, utilizing a spin-coating technique to develop the UF membrane. Visual study as well as scanning

electron microscope of the prepared membranes shows that the deposited layer is homogenous and free of structural defects. The average pore diameters were determinate to be approximately 75 nm and 90 nm respectively for M1 and M2. Finally resulting UF membranes were tested by measuring the water permeability and the filtration of Red 80 solution.

Speaker Biography

Hanae Ouaddari obtained her engineering degree from Ecole Mohammeda des Ingenieurs in 2004 into Industrial Process Engineering (Major). She then joined the National Center for Scientific and Technical Research as Laboratory Manager for Atomic Emission Spectrometry. In 2015 she joined the Laboratory of Materials Membranes and Environment of Faculty of Sciences and Technologies of Mohammeda, University of Hassan II as PhD student. Since 2018, she has been responsible for the Chemistry Platform, which includes eight laboratories offering analytical services in the fields of molecular chemistry and synthetic chemistry. Her current research interest includes the valorization of Moroccan clays for environmental applications to catalysis, adsorption and ultrafiltration.

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