

Indian Journal of Chemistry

Sect. B: Organic Chemistry including Medicinal Chemistry

Special Issue on Green/Sustainable Chemistry

VOL. 45B

NUMBER 10

OCTOBER 2006

CONTENTS

Advances in Contemporary Research

2251 Potential of ionic liquids in greener methodologies involving biocatalysis and other synthetically important transformations

A review on biocatalytic transformations in neutral ionic liquids and synthetic methodologies in Lewis acidic ionic liquids with emphasis on the advantages offered by these neoteric solvents.

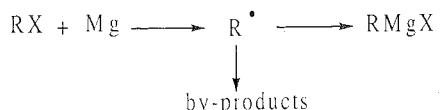
IPC: Int.Cl.⁸ C07C, C07D

Susheel J Nara, Prashant U Naik, Jitendra R Harjani & Manikrao M Salunkhe*

Papers

2270 Grignard reagent and Green Chemistry: Mechanistic studies to understand the molecular origins of selectivity in the formation of RMgX

IPC: Int.Cl.⁸ C07B49



Hassan Hazimeh, Jean-Marc Mattalia, Mireille Attolini, Nicolas Bodineau, Kishan Handoo, Caroline Marchi-Delapierre, Eric Pérez & Michel Chanon*

2281 Calculation of the activity coefficients at infinite dilution in binary aqueous systems of pyridine and its derivatives

IPC: Int.Cl.⁸ C07D

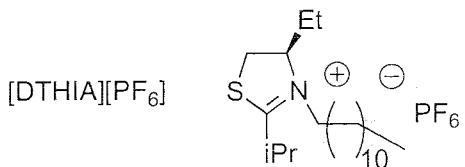
The activity coefficients at infinite dilution of binary mixtures formed by water and pyridine and its derivatives have been calculated using the NRTLmKW model. These have been compared with the data obtained directly from the measured vapour pressures. The results have been discussed from the point of view of intermolecular interactions and some recommendations made on the use of the NRTLmKW model for such calculation.

Pawel Gierycz* & Iwona Zioborak-Tomaszkiewicz

2286 Ionic liquids: Valuable solvents for palladium catalysed C-P cross-coupling reactions

IPC: Int.Cl.⁸ C07D

Room temperature ionic liquids have been used successfully for the preparation of phosphine derivatives via a palladium catalysed C-P cross-coupling. The use of a pyridinium-modified phosphine ligand combined to palladium acetate afforded a catalyst having a high level of activity and recyclability.



H Vallette, S Pican, C Boudou,
J Levillain, J C Plaquevent & A C Gaumont*

2291 Application of green chemistry principles for extraction of phytolipids and phenolic compounds

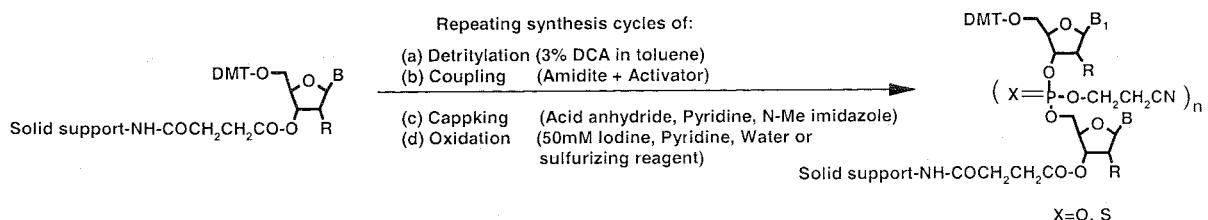
IPC: Int.Cl.⁸ A61K

Applications of modern extraction technologies, in conjunction with optimized extraction procedures have enabled chemists and chemical engineers to considerably reduce the quantity of solvents consumed and waste generated during the extraction of bioactive phytochemicals from different plant matrices.

Devanand L Luthria

2297 Manufacture of therapeutic oligonucleotides: Development of new reagents and processes

IPC: Int.Cl.⁸ C07D

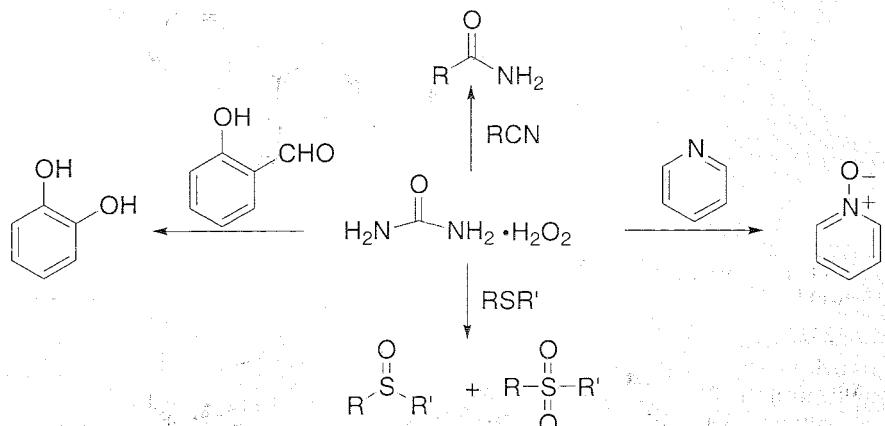


Nanda D Sinha*, Satya N Kuchimanchi,
Greg Miranda & Saied Shaikh

2305 Greener organic syntheses under non-traditional conditions

IPC: Int.Cl.⁸ C07D

A solvent-free approach that involves microwave (MW) exposure of neat reactants (undiluted) catalyzed by the surfaces of less-expensive and recyclable mineral supports such as alumina, silica, clay, or 'doped' surfaces is presented which is applicable to a wide range of reactions. Synthesis of a wide variety of significant precursors and intermediates and their value in concise MW synthesis of 2-arylbenzofurans, and thiazole derivatives is illustrated.

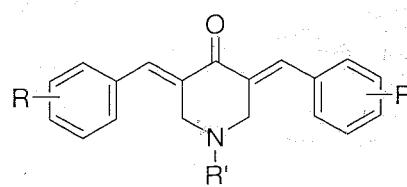


Rajender S Varma

2313 3,5-Bis(aryl methylene)-4-piperidone derivatives as novel anticancer agents

IPC: Int.Cl.⁸ C07D

Anticancer properties of 3,5-bis(aryl methylene)-4-piperidone derivatives have been reviewed with emphasis on their chemistry, bioactivity and quantitative structure-activity relationship studies.

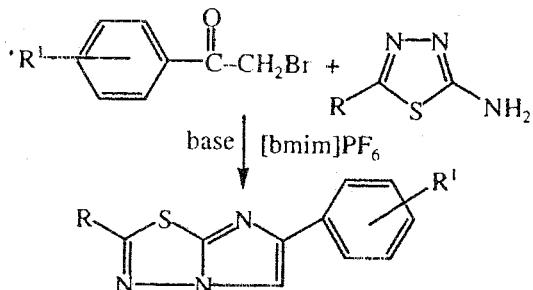


Amitabh Jha* & Katherine M Duffield

2321 Green synthesis of substituted imidazothiadiazoles using ionic liquid

IPC: Int.Cl.⁸ C07D

An eco-friendly synthesis of imidazo[2,1-*b*]-1,3,4-using ionic liquid, [bmim]PF₆ (1-butyl-3-methylimidazolium thiadiazoles hexafluorophosphate) is described.

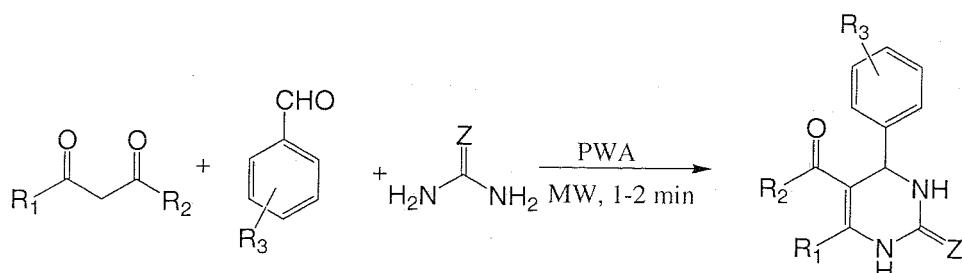


Mazaahir Kidwai* & Shweta Rastogi

2325 An environmentally benign protocol for the synthesis of 3,4-dihydropyrimidin-2(1*H*)-ones using solid acid catalysts under solvent-free conditions

IPC: Int.Cl.⁸ C07D

Phosphotungstic acid / sulfated zirconia catalyzed one-pot condensation of aryl aldehydes, urea derivatives and β -diketones under microwave irradiation rapidly affords substituted 3,4-dihydropyrimidin-2(1*H*)-ones in excellent yields and high purity. The low cost catalysts have exhibited remarkable reactivity and reusability for the aforementioned synthesis.



Dalip Kumar*, Braja Gopal Mishra & V S Rao

2330 Neat reaction technology: A green tool

IPC: Int.Cl.⁸ C07D

A solvent free approach for organic synthesis is described which involve microwave exposure of neat reactants. A variety of cyclization and condensation are carried out including the efficient one pot assembly of heterocyclic molecules from *in situ* generated intermediates.

Mazaahir Kidwai* & Poonam Mothsra

Notes

2337 Microwave effect in organic reactions

IPC: Int.Cl.⁸C07C

A method for predicting specific microwave effect in organic reactions has been evolved. The aforesaid effect is likely to be observed if all the reactants in an organic reactions (in the absence of a 'rate modifier') are polar in nature. It is unlikely to be observed if the reactions involve a non-polar reactant

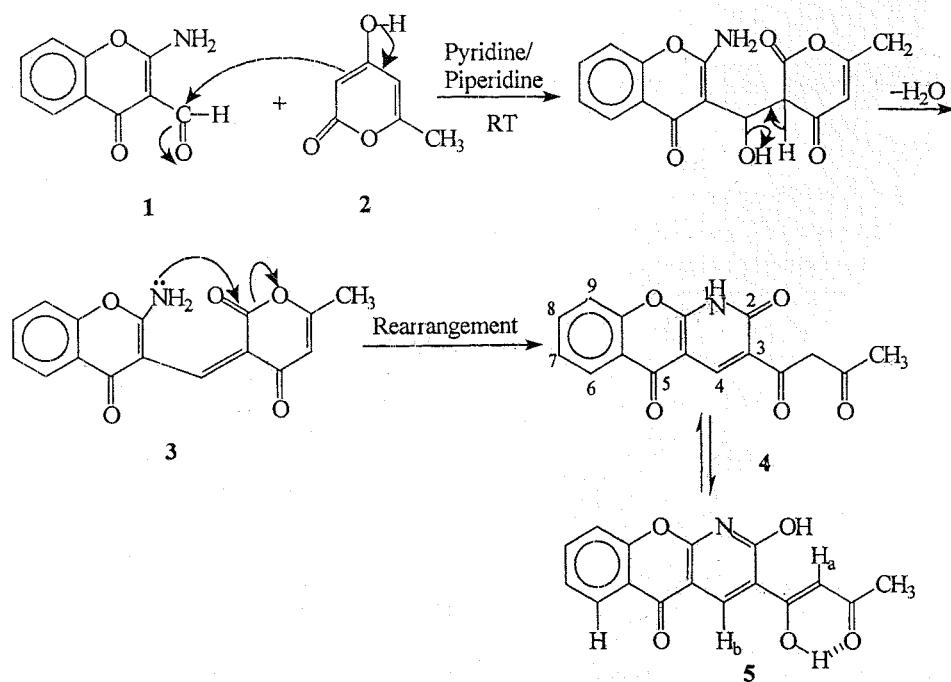
REACTANTS		SPECIFIC MICROWAVE EFFECT	
A	+	B	→
POLAR			OBSERVED / ALLOWED
POLAR			NOT OBSERVED / DIS-ALLOWED
NON POLAR			DIS-ALLOWED

Sharwan K Dewan

2341 One pot synthesis of 3-acetoacetyl-5-oxo-5H-[1]benzopyrano [3,2-e]pyridin-2-one from triacetic acid lactone

IPC: Int.Cl.⁸C07D

The nucleophilic character of triacetic acid lactone has been exploited here in the Michael condensation reaction involving 2-amino-3-formylchromone as the starting material. The compound has been characterized on the basis of spectral data and evaluated for antimicrobial activity



Zeba N Siddiqui*, Gulrana Khuwaja & M Asad

Green Education

2346 **Toxicology and the environment—An IUPAC teaching programme for chemists**

IPC: Int.Cl.⁸ C07C25/20

Increasingly chemists are faced with legislation requiring assessment of hazard and risk associated with the production, use, and disposal of chemicals. The general public is equally concerned about the dangers. To address these concerns, IUPAC agreed to produce a multi-author book, 'Fundamental Toxicology for Chemists'. The contents of each unit are explained as each has some input into environmental matters. In addition the programme includes a case study of dichlorodiphenyltrichloroethane (DDT) and a paper on toxicology and ethics, both of which are presented.

John H Duffus & Howard G J Worth*

2353 **Within the portals of green chemistry: Green strategies to manage curriculum induced hazards in chemistry laboratories**

IPC: Int.Cl.⁸ C07D

Some green procedures are being suggested here to establish a doer-friendly atmosphere in the laboratories.

S Bhanumati* & Harsh Deep

Authors for correspondence are indicated by (*)

IPC: International Patent Classification

Int.Cl.⁸: International Classification, 8th Edition, 2006