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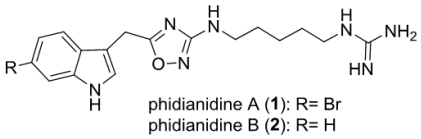
INVITED PAPER *NATURAL PRODUCT CHEMISTRY AND SYNTHESIS* 9

NATURAL PRODUCTS FROM MARINE HETEROBRANCHS: AN OVERVIEW OF RECENT RESULTS
Margherita Gavagnin, Marianna Carbone, Maria Letizia Ciavatta, Ernesto Mollo

Heterobranchs are a fascinating group of marine mollusks that are recognized as an important source of bioactive natural products. Often, these molecules, which are either selected from the diet or *de novo* biosynthesized by the mollusks, play a fundamental role for their survival being utilized as defensive chemicals against predators. A summary of the studies carried out, in the last decade, on heterobranchs is presented here. A number of new compounds exhibiting different molecular architectures were chemically characterized.

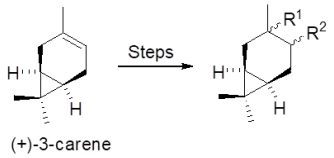


phidianidine A (**1**): R= Br
phidianidine B (**2**): R= H

REVIEW PAPER *ORGANIC CHEMISTRY* 32

RECENT STUDIES OF (+)-3-CARENE TRANSFORMATIONS WITH THE RETENTION OF THE NATIVE FRAMEWORK
Serghei Curlat

This review presents last decade and some past especially relevant studies in the field of (+)-3-carene synthetic transformations. Th paper discusses exclusively the transformations of (+)-3-carene, proceeding with the retention of the native bicyclic carbon skeleton. Data concerning the features of epoxidation and oxidation reactions of (+)-3-carene, the synthesis of S and Se-containing derivatives and their use in asymmetric synthesis are given. It also describes methods of synthesis amino derivatives of (+)-3-carene, substituted heterocycles based on it, reactions for the preparation of aziridines, azido-alcohols and azidoamines, as well as chiral phosphites as bidentate ligands.

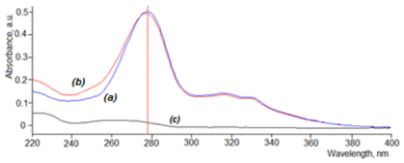


(+)-3-carene

RESEARCH PAPER *ANALYTICAL CHEMISTRY* 56

DEVELOPMENT AND VALIDATION OF AN ASSAY METHOD FOR CIPROFLOXACIN HYDROCHLORIDE DETERMINATION IN COMBINATION EAR DROPS
Livia Uncu, Elena Donici, Vladimir Valica, Oxana Vislouh, Veaceslav Gonciar, Sergiu Parii

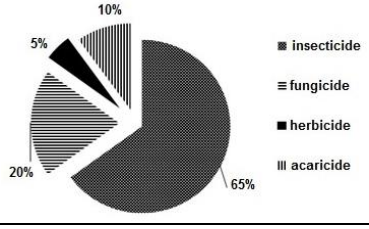
A simple, precise and accurate UV-Vis spectrophotometric method has been developed and validated for the estimation of ciprofloxacin hydrochloride from combination ear drops with basil oil (*Ocimum basilicum*). The results of the validation of the method demonstrate that the developed method is simple, rapid, accurate and robust over the concentration range 2-10 μg/mL of ciprofloxacin hydrochloride in combination with volatile basil oil.



RESEARCH PAPER *ECOLOGICAL CHEMISTRY* 62

PESTICIDES RESIDUE DETERMINATION IN VEGETABLES AND FRUITS COMMONLY USED IN REPUBLIC OF MOLDOVA AND ESTIMATION OF HUMAN INTAKE
Raisa Sircu [*], Gheorghii Turcanu, Nicolae Opopol, Iurie Pinzaru, Tatiana Manceva, Raisa Scurtu

A total of 5206 samples from twenty-one different vegetables and fruits were collected. Residues of pesticides in concentrations exceeding the maximum residue levels were found in 22.9% of analysed samples. Thirteen insecticides, four fungicides, two acaricides and one herbicide were detected in the analysed samples. The highest value of hazard index was calculated for diazinon – 0.15. The obtained results show that the long-term consumption of vegetables and fruits could pose a health risk for the population of the Republic of Moldova.



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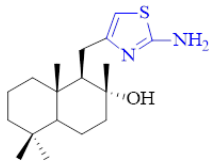
RESEARCH PAPER *NATURAL PRODUCT CHEMISTRY AND SYNTHESIS* 72

SYNTHESIS OF NEW DI- AND TRI-NORLABDANE COMPOUNDS WITH 2-AMINO-1,3-THIAZOLE UNITS
Svetlana Blaja

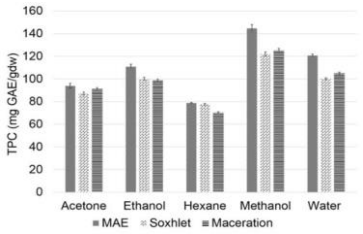
The present paper reports the synthesis of new hybrid terpeno-heterocyclic compounds belonging to di- and tri-norlabdane series. Starting from natural labdane diterpenoide (-)-sclareol, *via* its intermediates 8*α*-hydroxy-15,16-dinorlabd-13-one and sclareolide, two di-norlabdane and three tri-norlabdane, previously unreported compounds possessing 2-amino-1,3-thiazole structural units were obtained in three and four steps, respectively, with acceptable to good overall yields. The structures of newly obtained compounds were confirmed by means of spectral IR, ^{1}H and ^{13}C NMR analyses.



RESEARCH PAPER *NATURAL PRODUCT CHEMISTRY AND SYNTHESIS* 79

THE EFFECT OF SOLVENTS AND EXTRACTION PROCEDURE ON THE RECOVERY OF PHENOLIC COMPOUNDS AND THE ANTIOXIDANT CAPACITY OF ALGERIAN *BASSIA MURICATA* L. EXTRACTS
Hichem Mohammedi, Samira Idjeri-Mecherara, Fouad Menaceur, Aicha Hassani

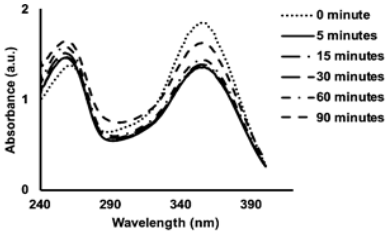
This paper focuses on the study of the effect of extraction solvent choice on phenolic compounds contents and antioxidant activity of *Bassia muricata*. In this study, five different solvents namely: water, acetone, ethanol, methanol and hexane, and three extraction techniques were used to extract phenolic compounds: microwave-assisted extraction, Soxhlet and maceration. Total phenolics, total flavonoids and condensed tannins contents were determined. The results showed that different solvents with different polarity had a major effect on polyphenolic contents and antioxidant activity. Microwave-assisted extraction was the best suited for the extraction of antioxidant molecules when compared to Soxhlet and maceration.



RESEARCH PAPER *ORGANIC CHEMISTRY* 90

SYNTHESIS AND PRELIMINARY EVALUATION OF SEVERAL CHALCONE DERIVATIVES AS SUNSCREEN COMPOUNDS
Jumina Jumina, Rizky Woro Styaningrum, Dwi Siswanta, Sugeng Triono, Yoga Priastomo, Harizal Harizal, Eti Nurwening Sholikhah, Abdul Karim Zulkarnain

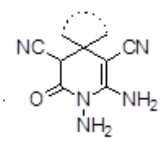
Four chalcone derivatives were synthesized and pre-evaluated as broad-spectrum UV protector. Chalcones **1-4** showed a wide range of UV absorbance values and moderate molar absorptivity values. Chalcones **3** and **4** showed better photostability than chalcones **1** and **2** because the lowering of their absorbance was smaller and slower under UVB irradiation. A combination of the spectra of chalcone derivatives **1-4** indicated that a formulation containing all four will provide a broad-spectrum sunscreen protecting the skin from UVA and UVB.



RESEARCH PAPER *ORGANIC CHEMISTRY* 97

MULTI-COMPONENT REACTION SYNTHESIS OF 1,6-DIAMINO-2-OXO-1,2,3,4-TETRAHYDROPYRIDINE-3,5-DICARBONITRILES USING ULTRASONICATION AND DMAP AS CATALYST
Maryam Shokoohian, Nourallah Hazeri, MalekTaher Maghsoodlou, Mojtaba Lashkari

4-(Dimethylamino)pyridine was found to be an efficient homogenous catalyst for one-pot multi-component reactions between hydrazine monohydrate, ethyl cyanoacetate, ketone, and malononitrile for the synthesis of 1,6-diamino-2-oxo-1,2,3,4-tetrahydropyridine-3,5-dicarbonitrile derivatives using ultrasonication at room temperature in ethanol solution within 35-50 min with yields of over 90%.



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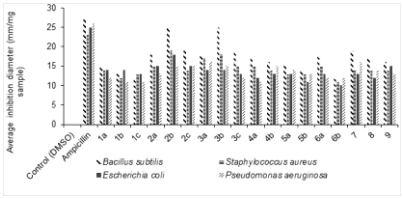
RESEARCH PAPER *ORGANIC CHEMISTRY* 105

SYNTHESIS AND ANTIMICROBIAL EVALUATION OF NOVEL PYRAZOLE, IMIDAZOLE AND PYRIMIDINE DERIVATIVES POSSESSING IMIDAZO[4,5-B]INDOL MOIETY
Nadia Ali Ahmed Elkanzi, Amira Atef Ghoneim, Hajer Hrichi

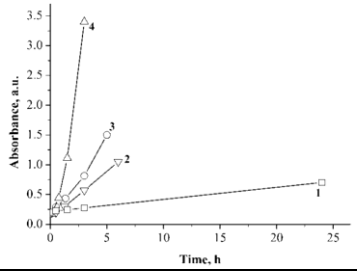
In this study, novel pyrazole, imidazole, pyrimidine derivatives bearing imidazo[4,5-b]indol moiety were successfully synthesized and their chemical structures were identified and confirmed by different spectral techniques. All the synthesized compounds were tested against four bacterial strains (*Bacillus subtilis, Staphylococcus aureus, Escherichia coli, and Pseudomonas aeruginosa*) and two fungi (*Aspergillus flavus and Candida albicans*). The obtained results show that the synthesized compounds could find fruitful applications as antibacterial and antifungal agents in pharmaceutical chemistry.



SHORT COMMUNICATION *ECOLOGICAL CHEMISTRY* 117

EFFECT OF TEMPERATURE ON GREEN SYNTHESIS OF SILVER NANOPARTICLES USING *VITEX AGNUS-CASTUS* EXTRACT
Oksana Stavinskaya, Iryna Laguta, Tetiana Fesenko, Marina Krumova

Silver nanoparticles colloids were prepared using the extract from the leaves of *Vitex agnus-castus*. The effect of temperature on the reduction of silver ions and on the growth of silver nanoparticles was followed by measuring the intensity of the surface plasmon resonance band in the UV spectra. It was found that fast reduction of silver ions occurs even at 40°C, while effective synthesis of silver nanoparticles requires elevated temperatures of 60-80°C.



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INSTRUCTIONS FOR AUTHORS