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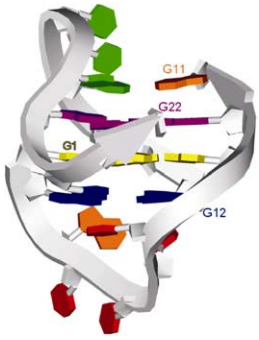
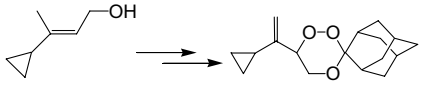
Contents

ARTICLES





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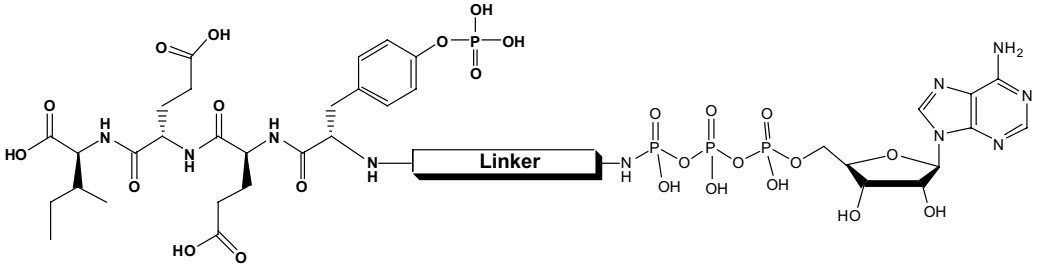
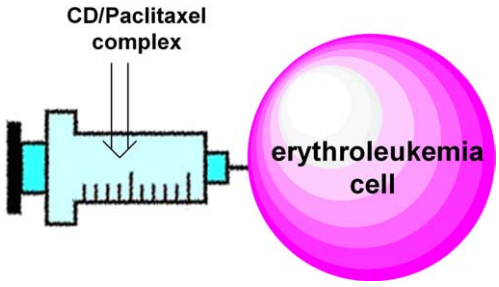
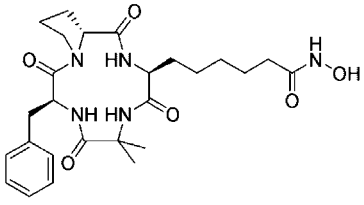
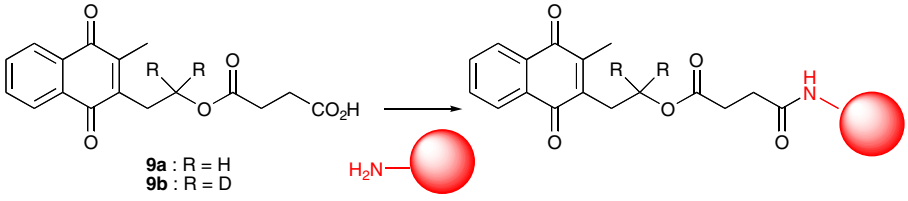
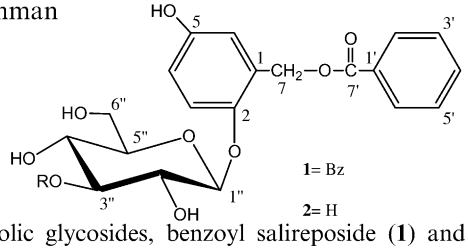




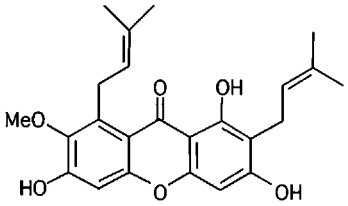




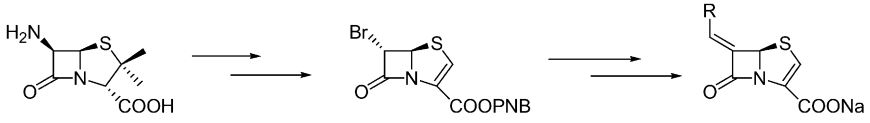
Two vitamin K analogues bearing a carboxylic acid side chain (**9a** and **9b**) have been synthesised and coupled to *N*-acetyl-Gly-L-Lys methyl ester, lysozyme and bovine serum albumin (BSA) as a first step to the development of an ELISA-based method for the detection of vitamin K. The protein conjugates have been characterised by ESMS and LC–MS.



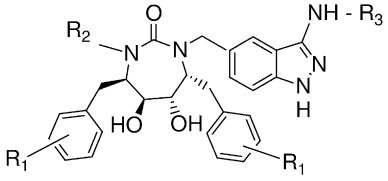
Cytotoxicity and kinetic studies of phenolic glycosides, benzoyl salireposide (**1**) and salireposide (**2**), were performed against phosphodiesterase I enzyme from snake venom phosphodiesterase and human nucleotide pyrophosphatase phosphodiesterase-1. These compounds are potential candidates for the therapy of arthritis.



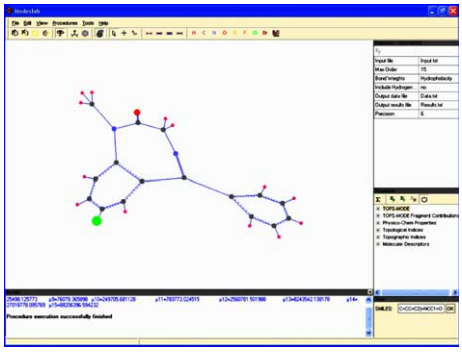
α-Mangostin, xanthone derivative from the pericarps of mangosteen, preferentially targets mitochondria, resulting in induction of apoptosis in human leukemia HL60 cells.



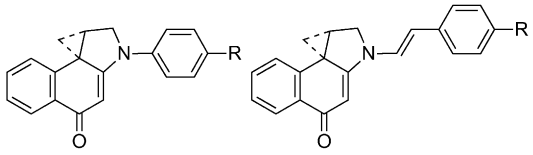
A series of novel imidazole substituted 6-methylidene-penems has been synthesized (R = heterocycle) and was shown to be potent, broad-spectrum β-lactamase inhibitors against class-A and class-C enzymes. The present paper deals with the design, synthesis, and structure–activity relationships (SAR) of compounds **11**–**15**.

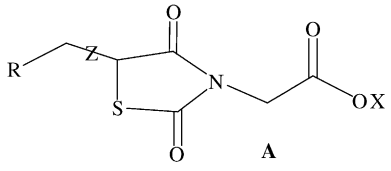


R_1 = H / alkyl
R_2 = 3-aminoindazole /alkyl / benzyl
R_3 = alkyl



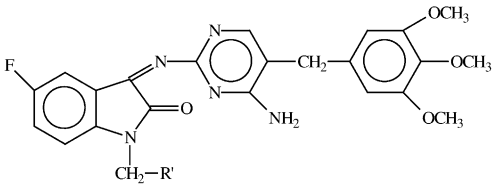
The central nervous system (CNS) activity was investigated by the TOPS–MODE approach. The discriminant model to classify CNS and non-CNS drugs explained more than 81% of the variance and it was assessed by a *leave-n-out* cross-validation procedure, an external prediction set and a 5-fold *full* cross-validation. With this methodology was demonstrated that the hydrophobicity increase the CNS activity, while the dipole moment and the polar surface area decrease it; evidencing the capacity of the TOPS–MODE descriptors to estimate CNS activity for new drug candidates. The model has also been able to identify potential structural pharmacophore, showing its possibilities in the lead generation and optimization processes.



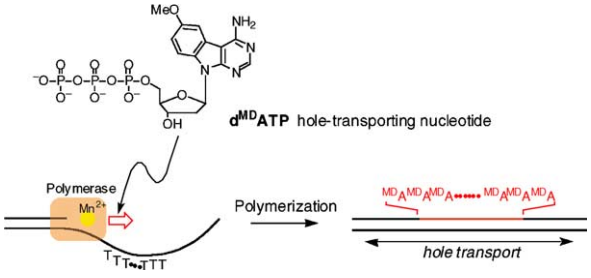


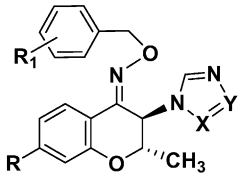
A

A number of thiazolidine-2,4-diones derivatives having carboxylic ester appendage at N-3 were synthesized and their antihyperglycemic activity was evaluated. Many of these derivatives as well as their corresponding carboxylic acid showed significant improvement on post-prandial hyperglycemia in normal rats, in contrast to their poor agonist activity at PPARγ.



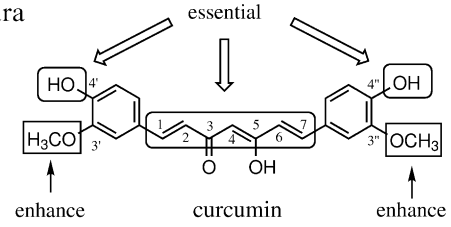
Aminopyrimidinimino-5-fluoroisatin compounds were designed as a novel non-nucleoside reverse transcriptase inhibitor with broad-spectrum chemotherapeutic properties that include anti-HIV, anti-HCV, anti-tuberculous and anti-bacterial activities.



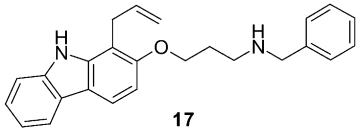


(±)-(*Z*)-*trans*
R= H; Cl
R_1= H; Br; F; Cl; di-Cl
X=CH; Y=CH or X=N; Y=CH
or X=CH; Y=N

A series of (*Z*)-*trans*-3-azolyl-2-methylchromanone oxime ethers were stereoselectively synthesized and tested for in vitro antifungal activity. Many of these derivatives exhibit high activity against *Candida albicans*, *Saccharomyces cerevisiae*, *Aspergillus niger*, and *Microsporum gypseum*.

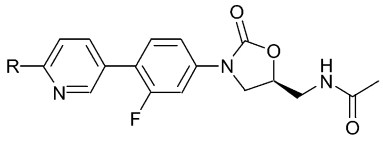


The 80% aqueous acetone extract of the rhizomes of *Curcuma zedoaria* cultivated in Thailand (Thai zedoary) was found to inhibit release of β-hexosaminidase, as a marker of antigen-IgE-mediated degranulation, in RBL-2H3 cells and passive cutaneous anaphylaxis reaction in mice. Effects of four curcuminoids from Thai zedoary and several related compounds on the degranulation were examined. Among them, curcumin showed the highest activity against β-hexosaminidase release with IC_{50} of 5.3 μM, followed by bisdemethoxycurcumin (IC_{50} = 11 μM). With regard to the structural requirements of curcuminoids for the activity, the conjugated olefins at the 1–7 positions and the 4′- or 4″-hydroxyl groups of curcuminoids were suggested to be essential for the strong activity, whereas the 3′- or 3″-methoxyl group only enhanced the activity. Furthermore, effects of curcumin and bisdemethoxycurcumin on calcium ionophores (A23187 and ionomycin)-induced degranulation and antigen-induced release of TNF-α and IL-4 were examined.



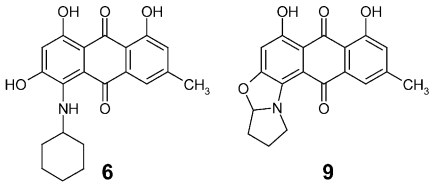
17

Propylamine derivatives with tricyclic systems were synthesized, and their inhibitory activities against squalene synthase and their effects on plasma lipid levels after oral dosing in rats were evaluated. Allyl-substituted 9*H*-carbazole derivative **17** demonstrated potent inhibition and good lipid-lowering effects with a reduced tendency to elevate plasma transaminase levels.



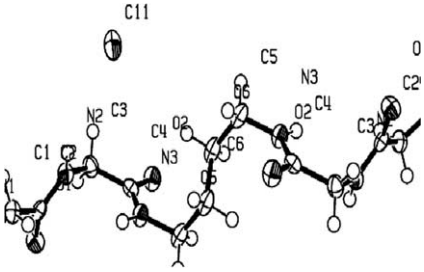
R = heteroaromatic ring substituents

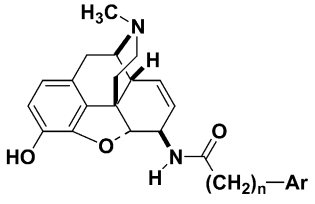
Oxazolidinone derivatives containing pyridine substituted with heteroaromatic ring were synthesized and exhibited potent in vitro and in vivo antibacterial activities against many antibiotic-resistant microbial strains.

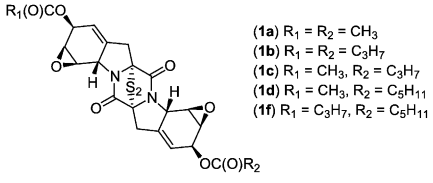


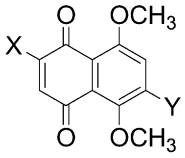
Synthesis and characterization of new emodin derivatives. Cytostatic potential and binding to multi-drug-resistance transporters were evaluated.

Copper-metalated bis-diglycine conjugates were synthesized and characterized via crystal structures and copper coordination was probed by FT-IR spectroscopy and ESI-MS. Their catalytic profile was evaluated for the cleavage of phosphodiester substrates and supercoiled DNA and oxidative coupling reaction. Remarkable rate enhancements were observed for three diverse reactions under homogeneous conditions.

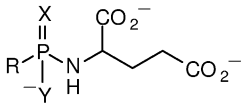








QSAR have been performed for different series of 2- or 6-substituted-5,8-dimethoxy-1,4-naphthoquinones with respect to their antiproliferative/cytotoxic activities against L1210. Activities of these compounds are found to be largely dependent on their hydrophobicity.



R = Et, *n*-Bu, Ph
X = O, S
Y = O, S

A series of phosphonyl, thiophosphonyl, and dithiophosphonyl derivatives of glutamic acid were prepared and examined for inhibitory potency against glutamate carboxypeptidase (carboxypeptidase G). Although varied in extent, stereoselective inhibition was dependent upon both carbon and phosphorus stereochemistry.

OTHER CONTENTS

*Corresponding author
ⓘ+ Supplementary data available via ScienceDirect

COVER

Schematic presentation of the folding of DNA oligonucleotide d($G_3T_4G_4$) in the presence of K^+, Na^+ or NH_4^+ ions into the dimeric G-quadruplex. The ribbon presentation on the right shows the lowest energy NMR structure in the presence of any of the three ions. Only subtle structural differences were found through detailed examination of NOEs, while the same general fold was retained. [Šket, P.; Črnugelj, M.; Plavec, J. *Bioorg. Med. Chem.* **2004**, *12*, 5735–5744].

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