1

Design, synthesis and biological evaluation of novel quinazoline derivatives with nitric oxide release moiety as preferential COX-II inhibitors

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Four novel series of 1-substituted-3-(2-methyl-4-oxo-4H-quinazolin-3-yl) urea and/or thiourea , 4-substituted-N-(2-methyl-4-oxo-4H-quinazolin-3-yl) benzene sulfonamide and their NO-hybrid molecules as nitrate esters have been synthesized and evaluated.

In-vitro cyclooxygenase inhibition assay

In-vivo anti-inflammatory activity

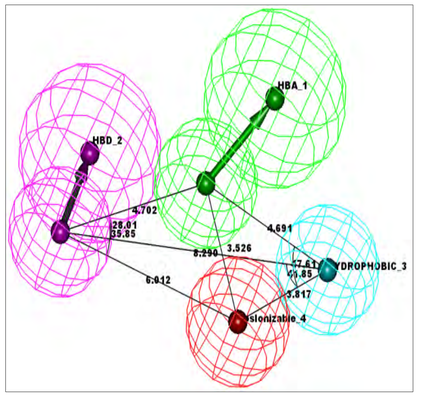
Evaluation of NO release in serum

Assessment of gastric mucosal ulcerogenicity

Histopathological investigation

Molecular Modeling Studies

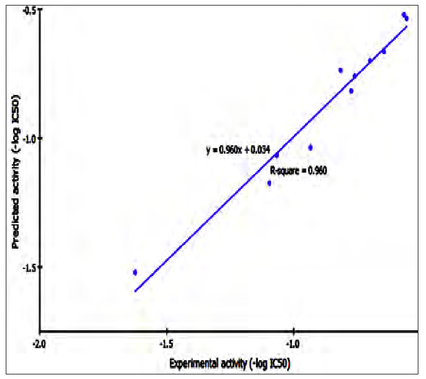
3D Pharmacophore study



2D QSAR model

Equation 1 represents the best performing QSAR model

$$-\log IC_{50} = 36.350\ ALogP - 47.177\ Molecular\_FractionalPolarSurfaceArea - 1.232$$



Docking Studies