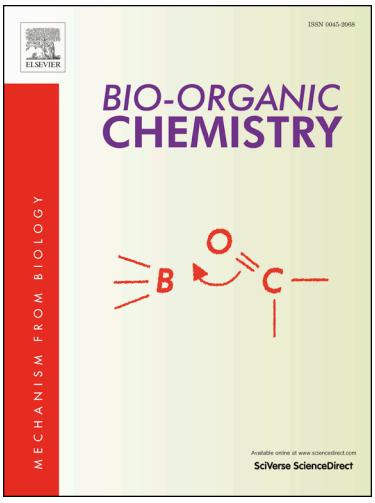

Unveiling novel 2-cyclopropyl-3-ethynyl-4-(4-fluorophenyl)quinolines as GPCR ligands via PI3-kinase/PAR-1 antagonism and platelet aggregation valuations; Development of a new class of anticancer drugs with thrombolytic effects

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Unveiling novel 2-cyclopropyl-3-ethynyl-4-(4-fluorophenyl)quinolines as GPCR ligands via PI3-kinase/PAR-1 antagonism and platelet aggregation valuations; Development of a new class of anticancer drugs with thrombolytic effects

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Abstract

In the present study, novel 2-cyclopropyl-3-ethynyl-4-(4-fluorophenyl) quinolines (**4a-l**) were recognized and evaluated as G-Protein Coupled Receptor (GPCR) ligands through molecular evaluations. Thrombin mediates adhesion of mast cell, a type of cell abundantly found in connective tissue and releasing histamine and other substances during inflammatory and allergic reactions, through phosphoinositol 3-kinase pathway. With this background, as preliminary, **4a-l** are resolute to be potential leads, designated from their effective phosphoinositol 3-kinase (PI3-Kinase) inhibition potentials, best-docked scores, comparative ligand efficiency, and significant structural attributes evaluated by *ab initio* simulations. Since thrombin is one of the main reason for various cancer invasion in association with PI3Kinase, a thrombolytic potential of the compounds also analyzed. The experimental *in vitro* studies confirmed the significant enhancement as PI3Kinase inhibitors and appreciable enhancement in MTT assay of breast and skin cancer cell lines. Significantly, acetophenone substituent in the quinoline scaffold could be coherent to note the significant binding affinity to all the evaluated drug targets.

Keywords: Anti-inflammatory; Anticancer; GPCR Ligands; Molecular docking; MTT assay; PAR1; PI3Kinase; Quinolines; XRD.