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Sustainable Flow Synthetic Strategies Toward Quinazoline Derivatives and APIs

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Highlights

- Green and mild methods for the synthesis of new quinazolines
- Flow and innovative approaches reduced environmental impact
- Selected derivatives exhibited promising antitumor activity in A549 cells

Abstract

The pharmaceutical relevance of quinazoline derivatives, particularly 4-aminoquinazolines, is linked to their presence in drugs such as *erlotinib*, *gefitinib*, and *prazosin*.[1] Their broad biological potential has driven the development of innovative functionalization methodologies, including S_NAr, *C-H* activation, cross-coupling, selective metalation, and flow reactions.[2,3] In this context, mild and sustainable synthetic strategies were optimized in this work according to Green Chemistry principles,[4] reducing environmental impact and producing derivatives with promising antitumor activity in A549 cells (Figure 1). These results highlight the role of innovative methodologies in the development of active pharmaceutical ingredients (APIs) and in expanding the therapeutic potential of quinazoline-based compounds.

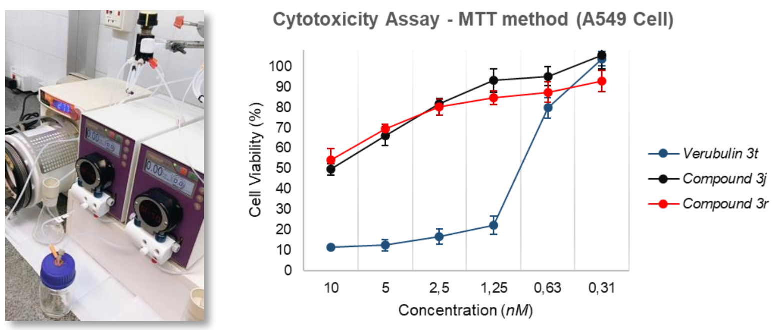

***Figure 1**. Experimental setup of the flow reactor (left); A549 Cell Viability with compounds up to 10 nM (right).*

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