Review of: "A Novel One-Pot Three-Component Approach to Orthoaminocarbonitrile Tetrahydronaphthalenes Using Triethylamine (Et_3N) as a Highly Efficient and Homogeneous Catalyst Under Mild Conditions and Investigating Its Anti-cancer Properties Through Molecular Docking Studies and Calculations"

Hamid R. Shahsavari[1]

1 Zanjan Institute for Advanced Studies in Basic Sciences

Potential competing interests: No potential competing interests to declare.

An efficient method for producing ortho-aminocarbonitrile tetrahydronaphthalenes with triethylamine as a catalyst is provided. The one-pot reaction produces a wide range of derivatives with good to outstanding yields in short reaction periods. The chemicals have the potential to be oral anti-cancer medicines because they bind to the 3A8P protein's active site. Multicomponent reactions provide the benefits of green chemistry, including great efficiency and simplicity in synthesis. Tetrahydronaphthalenes and other heterocyclic compounds have useful medical applications. This submission can be published in this journal after removing the following major issues:

Can the authors provide further information about the experimental conditions utilized to synthesize ortho-aminocarbonitrile tetrahydronaphthalenes? Specifically, discuss the reaction temperature, reaction time, and the role of triethylamine as a catalyst.

What criteria were used to select benzaldehydes, cyclohexanone, and malononitrile as the starting ingredients for the multicomponent reaction? Were there any particular structural characteristics or functional groupings that affected the selection of these compounds?

In the introduction, the authors stated that heterocyclic compounds play an important role in drug development and have a wide range of uses in numerous industries. Could the authors give some instances of existing medications or commercial items using heterocyclic chemicals and explain their unique applications?

In the experimental part, the authors mentioned that the synthesized compounds (4a-l) yielded good to outstanding yields. Can the authors share more detailed information about the yields obtained for various compounds, as well as any difficulties encountered throughout the synthesis process?

The anticancer characteristics of the produced compounds were studied using molecular docking calculations. Can the authors explain why they chose the 3A8P protein as the target for docking studies? What were the important results on the compounds' binding affinity and potential as oral anticancer drugs?

Given the growing relevance of green chemistry, how does the authors' proposed technique fit into the principles of green synthesis? Can the authors explain the environmentally favorable components of their technique, such as using green solvents and reducing waste?

Were any other characterization techniques, other than 1H NMR, used to confirm the structures of the produced compounds? If so, the authors can provide information regarding the characterization procedures utilized and the results obtained.

Based on the authors' results, what are the next stages or future directions for this research? Are there any planned adjustments or optimizations to the synthesis method, as well as additional studies to investigate the potential applications of the produced compounds?