

Review of: "Synthesis of 1, 2-Disubstituted Benzimidazoles at Ambient Temperature Catalyzed by 1-Methylimidazolium Tetrafluoroborate ([Hmim] BF₄) and Investigating Their Anti-ovarian Cancer Properties Through Molecular Docking Studies and Calculations"

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Potential competing interests: No potential competing interests to declare.

1. 1, 2-disubstituted benzimidazoles by the reaction of aromatic aldehydes and o-phenylenediamines (OPD) in the presence of 1-methylimidazolium tetrafluoroborate ([Hmim] BF₄) at ambient temperature under green conditions is described.
2. There should be one paragraph on specific literature use of Benzimidazoles for ovarian cancer. Is this the first time Benzimidazoles are considered for antiovarian cancer drugs or any research articles available in the literature. If yes, please include them before the last paragraph in the introduction section.
3. Rewrite the Introduction section for the clarity and sentence continuation.
4. What is the solvent ratio, EtOH: H₂O
5. Add chemicals and materials section and include the details such as purchased (e.g. sigma Aldrich, purity, etc) or sample made in the laboratory
6. The statement from the, Experimental section "mixture of benzaldehyde (2 mmol), o-phenylenediamine (1 mmol) and EtOH/H₂O (4 mL), was stirred in the presence of 1-methylimidazolium tetrafluoroborate (10 mol %) at room temperature in appropriate times. After the completion of the reaction, as indicated by TLC, the reaction mixture was cooled to room temperature." Is contradictory.

If the reaction is carried out at room temperature, why the authors mentioning cooled to room temperature? Can you clarify?

1. Please provide the list of abbreviations at the beginning of the manuscript. For example, EtOAc, Na₂SO₄ etc.
2. **There are lot of typos. For example, Spelling error in the 2nd column, Table 5.** Results of molecular docking calculations of synthesized compounds (**4a-4l**)
3. Most of the articles in literature has similar work, i.e. "Ibrahim, H.A., Refaat, H.M. Versatile mechanisms of 2-substituted benzimidazoles in targeted cancer therapy. *Futur J Pharm Sci* **6**, 41 (2020). <https://doi.org/10.1186/s43094-020-00048-8> ; **future medicinal chemistry, vol. 14, no. 24, Synthesis and anti-ovarian cancer effects of benzimidazole-2-substituted pyridine and phenyl propenone derivatives**, A-Long Cui, etal <https://doi.org/10.4155/fmc-2022-0244> ; <https://patents.google.com/patent/WO2013071001A1/en23>, etc.

10. The physical properties are missing for some of the compounds. Physiological properties (color, liquid or solid, melting point) should be provided for all compounds.
11. Please discuss the results of docking studies and the information derived from the studies to explain how it is related to anticancer activity.