



SDI Review Form 1.6

Journal Name:	Chemical Science International Journal
Manuscript Number:	Ms_CSIJ_48373
Title of the Manuscript:	1-Tosyl-2-trifluoroacetylindole as promising partner for synthesis of fused fluorinated heterocycles.
Type of the Article	

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	<p>1. General Manuscript editorial concerns. The manuscript contains numerous instances of poor sentence structure, word usage, grammatical errors and misspellings. Many of these issues have been highlighted in the attached annotated manuscript. Recommend that the authors correct these issues and have the entire manuscript proofread by someone fluent in the English language.</p> <p>2. The Introduction section does not examine in detail the available primary literature on the preparation of pyrimidines. The introduction is not inclusive of many relevant research articles on this topic. A Google Scholar search listed 35 articles published since 2010. Fluorinated pyrimidines have been prepared by alternate means. For example, see "Synthesis of Fluorinated Heterocycles," J. Fluorine Chem., 2002, 118(1-2), p.135-147 as one reference of an alternative pyrimidine preparative method.</p> <p>a. Recommend expanding the introduction to include more discussion of previously described synthesis methods as a way to differentiate this new approach. This is an important part of the authors' premise – that this method has advantages over other preparative methods.</p> <p>b. Recommend inserting a figure that shows an example of the indolopyrimidines so that the reader can associate the structure with the nomenclature of the fused ring system.</p> <p>2. Experimental Section for compound 3a contains and incorrect analytical component that refers to compound 1: Anal. Calcd for C₁₇H₁₂F₃NO₃S: C 55.58; H 3.29; N 3.81; F 15.52; O 13.07; S 8.73; Found: C 55.43; H 3.33; N 3.41; F 14.95; S 8.13; Mass spectra, m/z, Intensity: 367(100), 298 (56) M⁺-CF₃; 278(40) M⁺-CH₃C₆H₄; 214(32), M⁺-CH₃C₆H₄SO₂, 69(2) CF₃⁺.</p> <p>This analytical data needs to be moved to the experimental data section for compound 1.</p> <p>3. Results and discussion – Scheme 2. a. If this is a mechanism, then it is incomplete. It should be completed with all intermediate structures, electron-pushing arrows and labeled as a figure, not a scheme. If it is intended to be a reaction scheme as is indicated in the manuscript, then only the reactants, solvents and products should be listed.</p> <p>b. The authors discuss two possible mechanisms by which this reaction takes place. They have not provided a convincing argument that the reaction proceeds via these intermediates – there is no definitive proof offered. If there is literature precedent, this should be discussed in greater detail. If there is no literature precedent, then confirmation of the intermediate structures A-C should be provided and discussed in detail. Otherwise, it is just a guess. An S_N2' mechanism may be a plausible pathway for the formation of B, but unless an intermediate like B is isolated and characterized, it would be difficult to verify.</p>	We have made all the necessary correction as prescribed by the reviewer
Minor REVISION comments	<p>1. Use of subscripts on molecular formulae. All molecular formulae should be formatted such that the numbers are subscripted.</p> <p>2. Abstract. The authors should include the range of yields for the pyrimidine products as part of the abstract.</p>	



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	<p>3. Results/Discussion - use of the trifluoroacetyl/trifluoromethyl groups as spectroscopic handles on product identity. The authors have an opportunity to highlight the utility of ^{19}F NMR in showing not only the production of compound 1, but the final pyrimidine products, which bear the trifluoromethyl group. The chemical shifts of these two groups are very different and their presence in the isolated products shows formation of the target molecules 1 and 3. The following reference provides a good guide for the ^{19}F NMR chemical shifts of trifluoroacetyl groups: "19-Fluorine NMR Chemical Shift Variability in Trifluoroacetyl Species," Reports in Organic Chemistry, 2013, 3, 1-12. Therein are found explanations for the observed chemical shift differences often observed in trifluoroacetyl groups.</p> <p>4. Conclusion – The authors should expand this section to highlight additional benefits to this new method of fluorinated pyrimidine synthesis.</p>	
Optional/General comments	The authors have reported a small but interesting contribution to the preparation of fluorinated pyrimidines. All compounds have been characterized adequately as to their identity and the novel approach is worthy of publication if the recommended revisions to the manuscript are completed.	

PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	