



SDI Review Form 1.6

Journal Name:	American Chemical Science Journal
Manuscript Number:	2014_ACSj_11703
Title of the Manuscript:	The Electron Transfer Reaction of 3,7-Bis(dimethylamino)phenazothionium Chloride with Benzenethiol in Aqueous Nitric Acid: A Mechanistic Approach
Type of the Article	Original Research 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.

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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	1. Introduction is very scanty. It is silent on previous work done on benzenethiol. 2. Temperature of reaction MUST be checked or the author/ authors MUST indicate that the temperature of 29 °C was maintained throughout the study. 3. The captions for all the graphs should be rephrased and expanded to include the reacting conditions such as the concentrations of all the reactants, the ionic strength, the temperatures of the reaction and the wavelength of absorption. 4. Equation 8 in line 222 is a result of addition of equations 3 – 7 in lines 217 – 221 and should not appear here. 5. From the mechanism, only one $C_6H_5S^*$ free radical species was generated (equation 6), but in equation (7) there is some sort of dimerisation. Where is the origin of the second free radical species? 6. The mechanism MUST be revised.	Some of the comments here have been taken care of in our earlier revised article. The reaction conditions have already been indicated in the text, repetition of these in the captions for all the Figures, may make the article too voluminous. There are several of the free radicals in the medium
Minor REVISION comments	1. Method of obtaining order of reaction with respect to the reductant is correct but should appear under methods, so also the plot of variation of rate constants with changes in ionic strength, dielectric constant and added ions on reaction medium. The method of investigation of free radical participation and the presence or absence of intermediate complex formation must appear under methods.	Some of the comments here have been taken care of in our earlier revised article



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	2. Plot to show how result of stoichiometric studies was arrived at must be included. 3. Include a typical plot of $\log (A_t - A_\infty)$ versus time to show the linearity of the plot that you suggested in lines 71 - 72, if there is any. This is very important. 4. Line 74 – 75, $\log k_1$ versus $\log [C_6H_5SH]$ is not from Table 1 but derived from Table 1. 5. The author is mentioning the gradient of a linear graph in Line 75 without showing the graph. Plot of $\log[k_1]$ versus $\log [C_2H_5SH]$ should be included. 6. Line 105, what's the significance of this gradient? The author/ authors have not indicated whether the graph has an intercept or not, an observation that is very crucial to this study. 7. What's the slope of the graph mentioned in Line 118. It could give an idea on $Z_A Z_B$, which would assist in proposing a mechanism of the reaction. 8. The assertion in Line 150-151 that this result suggests that the rate determining step is composed of positive charges is not correct. Please revise 9. Author/ authors should pay a great attention to grammar e.g Line 154 'catalysed' should be 'catalyse'. 10. Line 150, mention must be made of the presence or absence of intercept in the k_2 against $[X^-]$ plot. 11. Line 211 should read '.....no intermediate complex formation.....' 12. Line 232, 'free' should precede the 'radical'	
<u>Optional/General</u> comments	The paper can be accepted for publication if the major and minor revisions are effected	