



# 17<sup>th</sup> Radiochemical Conference

11 – 16<sup>th</sup> May 2014, Mariánské Lázně, Czech Republic

c/o Department of Nuclear Chemistry, Czech Technical University in Prague, Břehová 7, 115 19 Prague 1, Czech Republic

Dear Colleague,

the Organising Committee of the 16th Radiochemical Conference appreciates your kind co-operation in reviewing the papers submitted for publication in the Conference Proceedings (Select Papers) in the Journal of Radioanalytical and Nuclear Chemistry (JRNC). You will get a printed manuscript at the Conference (if available), but then the whole reviewing process will be managed electronically. You will get access to manuscripts that have been assigned to you for the review on the INDICO web page. Then you can download the particular manuscripts (see instructions below). To facilitate your task, we have developed an evaluation form which is given below. We would be grateful if you could answer the indicated questions in the evaluation form, write additional comments to the authors on a separate sheet and upload the scanned review to the INDICO web page (see instructions below). Make sure, please, that similar papers on related topics published recently in JRNC have been cited in the References as well as the results appropriately discussed. In the case that either minor or major revisions are needed, the manuscript will be sent back to author(s) together with your comments, your anonymity being preserved. We would like to encourage you to correct also English errors in the manuscript, especially as regards English formulations that could cause scientific misunderstanding. However, papers with very poor English should be classified for major revision with recommendations to authors to have them corrected by a native speaker. We would appreciate if you strictly stick to the JRNC standards in your reviews to help us in selecting a maximum of 75 worthy/best papers allotted for publication in the conference proceedings. The final decision whether or not to publish a manuscript will be taken by the Editor-in-Chief of JRNC. The deadline for returning of the review is 30<sup>th</sup> June 2014. To be able to publish the Conference proceedings timely, we kindly ask you to adhere to this deadline. We thank you very much for your help.

With kind regards,

Yours sincerely,

Jan John  
General Chairman

Jan Kučera  
Chairman, Editorial Board

1. Is the abstract and title informative	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	No	Partly	OK
2. Originality and/or novelty of concept or approach	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	None	Some	Superior
3. Applicability and usability	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Useless	Conditional	Significant
4. Method calibrated and validated (when appropriate)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Neither	No validation	Both OK
5. Accuracy and soundness of conclusions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Poor	Satisfactory	Excellent
6. Clarity and overall length*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Poor	Wordy	OK
7. Quality and quantity of references	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Inadequate	Missing some	OK
8. Tables	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Too many	Missing some	OK
9. Figures	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Too many	Missing some	OK
10. Are figures of high quality for reproduction	<input type="checkbox"/>		<input checked="" type="checkbox"/>
	No		OK

\* The maximum length of a contributed or plenary/invited paper is approximately 20.000 or 30.000 characters (including spaces), respectively, including tables and references, plus a reasonable number of figures.

N.B. One normalised page (30 lines per 60 characters including spaces) corresponds to 1.800 characters.

Overall recommendation:

- Excellent paper
- Very good paper *I part*
- Fair paper
- Unacceptable paper

Revisions needed:

- No revisions
- Minor revisions
- Major revisions
- To be rejected

Comments to the editors (additional comments to the authors should be attached on a separate unsigned sheet): .....

Date and signature: 23 06 20 14 

Instructions for downloading the manuscripts:

- 1) Log in the INDICO web page of the 17<sup>th</sup> Radiochemical Conference, go to "Contribution list".
- 2) In the row of assigned manuscript ID, click on an icon in the utmost right column ("Files"), which indicates that the manuscript has been uploaded. Alternatively you may click on the manuscript title and then on "Materials" at the bottom of the page.

Instructions for uploading the reviews

- 1) Log in the INDICO web page of the 17<sup>th</sup> Radiochemical Conference, go to "My registration direct access".
- 2) Click on the title of the manuscript assigned for review, click on "Add material" located close to the page bottom.

The submitted paper presents a comprehensive and thorough work as concern influence of gamma-rays on the survival of east and bacteria in the presence of OH scavengers. The part related to this subject presents unquestionable high scientific value.

A few comments corresponded to the first part:

- Q is defined only in the cited paper; such an information is insufficient.
- The sentence “the higher the  $k_{OH}$  rate constant the lower the radiation protection” (page 6, line 14, similar statement in Conclusions) is inconsistent with the following analysis of the processes expected: In the studied systems there are two targets for OH: added substance (methanol, ethanol or potassium formate) and cells. For higher  $k_{OH}$  more hydroxyl radicals are involved in the reaction with scavengers and consequently less OH is engaged in the competitive reaction with cell. Thus the protection of cells ought to be more efficient.
- Concentrations of the scavengers is unknown.
- I suggest using expression “radiation biochemistry” instead of “bioradiation chemistry” suggesting biological origin of radiation.

The second part of the manuscript concerning UV effects raises many fundamental objections. Many issues have to be cleared if the text would be published.

1. Polypropylene (ampoules) and alcohols/potassium formate have ultraviolet cutoff that at each case must be taken into account. Was the absorption of the reference samples tested in the range of UV light? The result might depend on the concentration of scavengers which is unknown.
2. The mechanisms of reactions initiated by gamma-rays and UV in aqueous solutions are totally different thus the observed effects are incomparable.
  - UV does not generate OH radicals in water thus the studies on the influence of OH scavengers are unreasonable (for such studies the  $H_2O_2$  presence is necessary). In this particular case intracellular water exposed to UV radiation might create precursors of OH slightly influencing system. But even then the role of extracellular scavenger is negligible.
  - Contrary to radiolysis initiated by gamma-rays, the main mechanisms of UV-induced effect is predominantly related to the selective absorption of UV by biomacromolecules (e.g. DNA) what can initiate SSB or DSB and finally cell inactivation (the phenomenon is mentioned in the last sentence of Results and Discussion and in Introduction). Thus, for UV predominantly direct effect resulting from absorption of photons by the chromophore groups is characteristic contrary to the indirect effect characteristic for gamma-rays. For this reason the confrontation of the results obtained in both cases for the same doses absorbed is questionable.

General conclusion: the first part of the manuscript might be published after minor corrections but the manuscript as a whole is supposed to be published after major changes.