Reviewer’s report

Title: Effects of uremic solutes on reactive oxygen species in vitro model systems in monitoring the renal function

Version: 3 Date: 22 November 2014

Reviewer: Marcela Hermann

Reviewer’s report:

In this work Pires de Assis et al. describe the effect of uremic solutes on reactive oxygen species in vitro model systems. The authors used several uremic solutes that accumulated in blood from patients with chronic kidney disease for test whose antioxidant potential and used several assay to measure antioxidant activities of selected uremic solutes. However the manuscript is not suitable for publication in its current state. Several major issues need to be addressed before the manuscript can be accepted. Many parts of this manuscript are written in a confusing and / or too colloquial manner.

Major Compulsory Revisions:

1. According instructions for authors and general guidelines of the journal’s style, following change in sections order is necessary: Methods - Results and Discussion – Conclusion. Do not use numbering of / in sections.
2. Change sections name “Materials and Methods” to “Methods” only (P 14, L 338)
3. Subsection 4.1 in manuscript (P 14, L 340) named “Reagents and Chemicals” should be removed, and the information in this section should be given in methods.
4. The authors should check references style; in the manuscript the references are not in journal style and not consistently (different font and size e.g. P25. L614 and L 617). See examples for that in section of the References in the BMC Nephrology guide for authors.
5. Statement in the title, that effect of uremic solutes on reactive oxygen species in vitro model system is the method of choice in monitoring the renal function is excessively, will be better written e.g. “...as a possibility in monitoring the renal function”, or the authors better change title to “Effect of uremic solutes on reactive oxygen species in vitro model system”. The renal function is monitored by established clinic-chemical parameters.

Minor Essential Revisions

Background section:

P3 L55: change alkoxy (ROO#) to (RO#)

Results and Discussion section:
P6 L143: change subtitle to “ABTS#+ radical scavenging by uremic solutes”.
P6 L145-147: partly delete and change to “ABTS#+ assay provide a good...”.
P7 L148-149: delete “it was observed that” and beginning wit “Uric acid...”.
P7 L165: ABTS#+ concentration should be given in molar concentration.
P8 L180: change subtitle to “HOCl/OCl- scavenging by uremic solutes”.
P8 L192: change subtitle to “O2#- scavenging by uremic solutes”.
P9 L207: write Barreiros et al.
P9 L212: change subtitle to “H2O2 scavenging by uremic solutes”.
P10 L223: write Chen et al.
P10 L234-236: write ...showed decreased scavenging capacity against #OH and methyl (#CH3) radicals and singlet oxygen (1O2), increases for O2#- and RO# radicals, and no changes for ROO# radical in comparison to healthy individuals.
P10 L243: spell out abbreviation LPO
P10 L240: change subtitle to “ROO##scavenging by uremic solutes”.
P12 L282: change subtitle to “Oxidant scavenging of uremic solute mixtures”.
P13 L300: write Noguer et al. [41].

Methods section:
Paragraph P15 L352-356 should be given as first paragraph in section “Results and Discussion”. Paragraph P6 L138-141 should be deleted.
P16 L375: change activity to assay
P16 L386: change activity to assay
P16 L388: citation Ching et al. [57] do not describe the HOCl/OCl- method the authors used, please clarify.
P17 L394: citation [59] do not describe the HOCl/OCl- method the authors used, please clarify.
P17 L402: change subtitle to “Peroxyl radical (ROO#) scavenging assay”.
P18 L436: change activity to assay
P18 L483: citation [57] do not describe the H2O2- method the authors used, please clarify.
P19 L451: change subtitle to “Experiments with uremic solute mixtures”.

Generally, more detailed experimental conditions must be described in methods section. I suggest the authors revise their writing style and try to rephrase parts of the manuscript (e.g.P17).

Figures and figure legends:
Statistical analysis information are missing, were all test performed in triplicate? Indicated that in figure legends.
If all test were performed in triplicate, error bar are not included in the diagrams, in all figures except in Fig.1 B.
Generally, figures A, B etc. authors described in legends as one figure, but in manuscript all figures are graphically separately. Authors should present figures A, B etc. as one graphic file.

Figure 1. A-C: writing wavelength information for inset in figure legends.

Figure 2. A-E: writing wavelength information for inset in figure legends. Description of (v0) and (v) (P30, L728 and L729) should be removed and involved in inset description only, for (v) change to “velocity in the presence of various concentrations of sample”. The Legends for figure 2.D and 2.E are missing.

Figure 3.A-B: writing concentration of solute mixtures and wavelength information for inset in figure legends.

Figure 4. A-C: writing concentration of solute mixtures and wavelength information for inset in figure legends.

Generally, figure legends are rather poor.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests