

Interactive comment on “Model reactions and natural occurrence of furans from hypersaline environments” by T. Krause et al.

Anonymous Referee #1

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The manuscript submitted by Krause et al. describes the detection of various alkylated furans and traces of chlorinated and brominated furan in sediment and water samples collected from several Western Australian salt lakes and from the Dead Sea. In model reactions based on the Fenton reaction using a Fe^{2+} bispyridine complex and hydrogen peroxide the authors demonstrate that furan, alkylated and halogenated furan derivatives can be produced from catechol and 4-ethylcatechol. The findings described in this manuscript are very interesting and are discussed in to their potential impact on the atmospheric formation of ultra fine particles and their impact on the local climate. According to the first part of the title of the manuscript: “Model reactions and natural occurrence of furans from hypersaline environments” the authors should add a scheme showing reaction pathways for their model reaction using the bispyridine Fe^{2+} complex and the reaction based on Fe^{3+} sulfate leading to alkylated and halogenated furans.

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This would certainly help many readers to better understand the impact of the findings described in this manuscript.

It would also be of quote some interest to find a hypothesis why the amounts of products are so low and whether this is due to most the presence of unreacted educt or due to side reactions (which ones?).

The interpretation of Fig. 4B that the redox reaction takes place at low pH between 4 and 5 is not in agreement with what is shown in Fig. 4 B where it looks as if the reaction rate is higher at pH values around pH 7.

In the text capital letters should be used in the numbering of the figures as done in the figures themselves.

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