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Interactive comment on “Optimizing the impact of temperature on bio-hydrogen production from food waste and its derivatives under no pH control using statistical modelling” by A. Sattar et al.

Anonymous Referee #3

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The manuscript is well written and documented the impact of temperature on bio-hydrogen production from food waste without using any mean to control the pH during incubation. Along with hydrogen production, the impact of temperature on VFA, glucose and pH was also represented in well organize way. The study is a good addition to the work done previously on hydrogen generation from food waste and rationalizes some important aspects regarding selection of temperature in connection with pH for mass production of hydrogen. Specific Comments: In abstract, the authors indicate the increase in hydrogen production with temperature for food waste but later on mentioned that maximum yield belongs to food waste under mesophilic temperature. Although the cumulative bio-hydrogen production and hydrogen yield are close to each

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other, still the reason should be given regarding this issue, though it is understood that the VS removal was higher at elevated temperature but still it should be mentioned in the abstract. The main objective of the paper is to study the impact of temperature along with absence of pH management practice, but in introduction this aspect was not carefully discussed. I think addition of few more examples especially regarding psychrophilic conditions would be good to address this issue. In methodology part, P 12827 L 25-26 need some clarification regarding the way opted to manage 10%TS with addition of extra water. Figure 3, 5, 7 need to be redrawn as the values mentioned on axis are in small in size that they are unable to read. Increasing the font size can help to address this problem. The 3-D surface plots need support of contours so that the variation trend is understood in better way. So, I strongly recommend incorporating contours in same figure or adding another figure as composite. At the same time the discussion part should be updated in the light of contour plots for improving the quality of manuscript. The conclusion part should include study objective that will develop better understanding regarding the findings. Also it should strongly emphasize on opting thermophilic conditions for hydrogen production from food and noodle waste. As a whole the paper is acceptable after minor revisions in the light of comments mentioned.

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