

## ***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 #4**

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The manuscript describes the impact of temperature on bio-hydrogen production with the help of response surface methodology. The temperature impact on other working parameters like pH, VFA and glucose is also discussed in term of mathematical models and three dimensional graphs. The model was technically well designed and successfully applied on experimental results especially on noodle waste that was new to me. The overall language used in manuscript for explaining the details of the process is okay but a careful revision can further improve the overall readability. The manuscript can be accepted after minor revisions. Specific Comments: Introduction part needs little improvement; like, all aspects of Clostridium should be described at one place together instead of discussing at two different places (Page 12825 & 12826). There

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should be some information about the hydrogen production under hyper thermophilic conditions. The study emphasis on hydrogen production without pH control practice so introduction part should have some discussion about selecting such practice. Figure 5 represents the consumption of glucose with time and temperature. More discussion should be done on glucose consumption representing the impact of temperature on specific waste with respect to time, in the light of modeled equations developed. The representation of three dimensional figures needs improvement in term of readability.

Technical Comments: Page 12825 Line 2 replace “one century” with “a century” Line 5 reconsider use of preposition “reduction of” Line 9 Rephrase “more than 80% of food waste consists of the volatile solids” Page 12826 Line 4 describe hydrogen consumers Line 8 add suitable preposition “temperature and time heat treatment” Line 23 rephrase “yields are misleading if it is calculated in term of” Page 12827 Line 16 “It was grounded in a meat grinder” need revision to explain “it”. Line 24 Revise “two series of experiment” Page 12831 Line 25 place suitable unit to describe 79.25 Line 25 Replace “at” with “during” Page 12832 Line 13 Revise “it has a negative impact of temperature on bio-hydrogen production” Line 21 Revise “The effect of temperature on P and yield was calculated on the basis of VSfed was same” Page 12833 Line 6 “the COD removal efficiency decreased with an increase in temperature” required explanation like given for RW in previous paragraph Line 7 Place “,” after picture Line 20 delete “a” from “on a daily basis” Line 20 please specify the yield Page 12835 Line 20 Revise “indicator of higher production of bio-hydrogen production as observed”

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