

## ***Interactive comment on “Removal of Dyes from Simulated Wastewater using Low Cost Activated Carbon Derived from Date Pits” by Salam A. Mohammed et al.***

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Responses to the reviewer comments In general, our intention of this research is to treat waste water using some of agriculture waste and re generate the consumed AC is not in our objective because as it is been indicated by valued reviewer it is expensive and it will not be economic. Treating waste water with cheap AC from some waste in order to have water with less pollutant is sustainable green technique We will take each point been mentioned and here we are providing our response individually: Generally all the comments related to the abstract will be implemented in the final version of the paper (Lines 18-20, 21, 18-28) and the revised version of the abstract became as the

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following: [There have been a lot of concerns regarding the pollution in aquatic resources. Since then, there has been a remarkable scientific work in order to remove all sorts of pollutants (as organic and inorganic components) and offer a reasonably clean environment. In this effort, we show synthesis and characterization of activated carbon (AC) from date pits using various thermal activation (ordinary furnace and commercial microwave) and then chemical activation using concentrated H<sub>2</sub>SO<sub>4</sub>. Moreover, another series of samples were generated by chemical activation and followed with thermal activation. Furthermore, we demonstrate the removal of four hazardous dyes as organic pollutants from simulated waste water via adsorption using three packed bed column as semi batch process. The adsorption experiments demonstrated smooth running flow for the threated water and good removal efficiency for all dyes with some variations. The highest performance of AC reached up to 97.9% and the efficiency variations will be adequately displayed and discussed.] Line 40-41 quite number of researchers has studied those materials (such a rice husk, coconut shell fiber etc) as adsorbent to replace activated carbon (AC) and a sentence has been added into the text related to this point. Line 47-49: true enough the point been mentioned and we totally agree with, therefor we chosen two ranges of the particles sizes (250-425, 425-600  $\mu$ m) in line 78. Paragraph been added to highlight it Line 58-60: we have selected four different types of organic dyes (as wide range of dyes available) to study the performance of the generated AC on the dyes removal. This sentence was paraphrased in a way to demonstrate the reason behind of dyes selection. Line 73: In fact, we are targeting to use the actual textile wastewater in our second level of the research after we have proven the generated AC on dyes removal from the simulated wastewater. We strongly support this comment. Line 78-80: Both activations were implemented. Chemical activating was conducted (line 73) and then thermal activation was been done. Line 87: A total mass of 6 gm of AC been used in the three packed beds with 0.083 ml.sec<sup>-1</sup> as average filtration velocity for the water flow. Line 92: pH was measured using calibrated pH probe was around (8-8.4 based on the dyes type). Every time before the measuring the calibration was performed using three different standard

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solutions (pH: 4, 6, and 8). Line 92: here we believed that the respective reviewer referring to line 82 instead of, this heating was performed on the final AC produced for 1.5 hour before conducting the water treatment insure that we have exact starting condition for the experiment for each run. Line 97-101: surly we have generated the calibration curves for each dye and these curves were added in the text as figure number 2 results were based on that particular curve. Line 104-107: We totally agreed with this comment and this part of the methodology was paraphrased to state the procedure with clear explanation. The results are discussed thoroughly in the final draft. Line 136: the removal % results were conducted automatically using NIR software (Unscrambler Portable) and we have corrected the formula as mentioned in the respective reviewer comment. We had a mistake in writing the relation mentioned. In other hand, basically predicted as term is same as final effluent which indicate to the dye remaining concentration Line 148: this point is true at certain conditions, but we believe that when the pollutant is kind of martials having high surface tension then the behavior will be different. We have found in our current second level of this research that the best efficiency at particle size between certain range in compare with other probability which we will show it the coming new article. Line 149: we totally agree and paragraph was added in the text. Graphs 3 and 3 they are note same and are presenting two different particle sizes with the dyes removal results. The required changes on the X and Y axis format are made and the new figures have replaced the old one. To maintain consistence in the text style we have eliminated table one from the article as has been recommended by respective reviewer. At the end, as main target of this research was to compare the AC generated using ordinary commercial microwave efficiency with its generated using furnace as power saving and time need for the activation.

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