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Introduction

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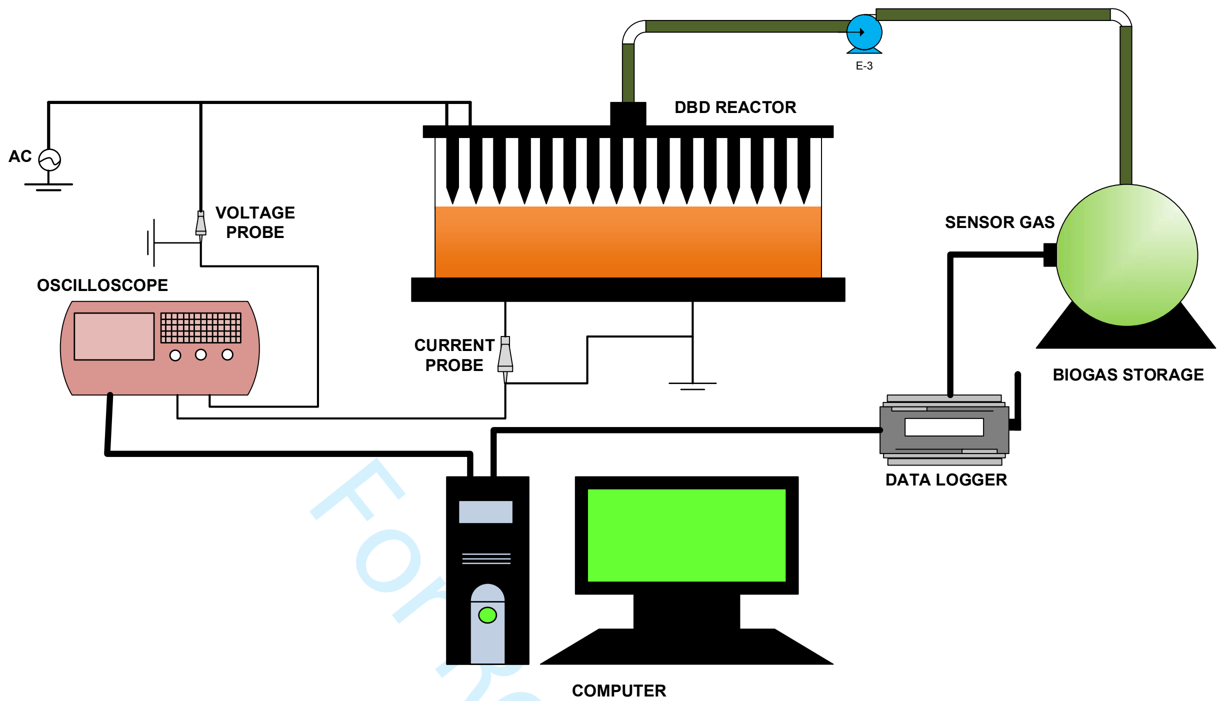

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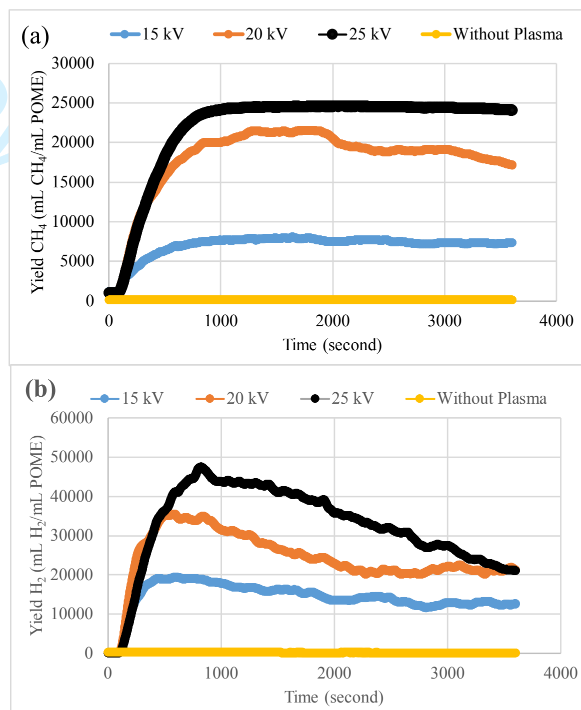

Fig. 2. Production of biogas achieved from different applied voltage for methane yield **(a)**; hydrogen yield **(b)**

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2. Results and Discussion

2.1 Production of Methane and Hydrogen

Due to the voltage enrichment, both the electron density and the concentration of radical species increased significantly, which stimulates and activates the production of CH_4 and H_2. The applied voltage had a significant effect on the CH_4 and H_2 yield from the POME, as shown in Figs. 2(a) and (b). The CH_4 yield was 7697, 20050 and 24156 mL/mL POME and the H_2 yield was 7697, 20050 and 24156 mL/mL POME for applied voltage at 15, 20 and 25 kV, respectively. Radical species were generated by the C=O and C-H bounds when a high voltage was applied to the POME and reacted to form CH_4, H_2 and CO_2. The chain reaction led to a higher degradation of the POME when the applied voltage was increased. It is clear that, as Figs. 2 (a-b) show, the applied voltage significantly affected the CH_4 and H_2 production. These results are the same as those found by Mao et al. (2018).

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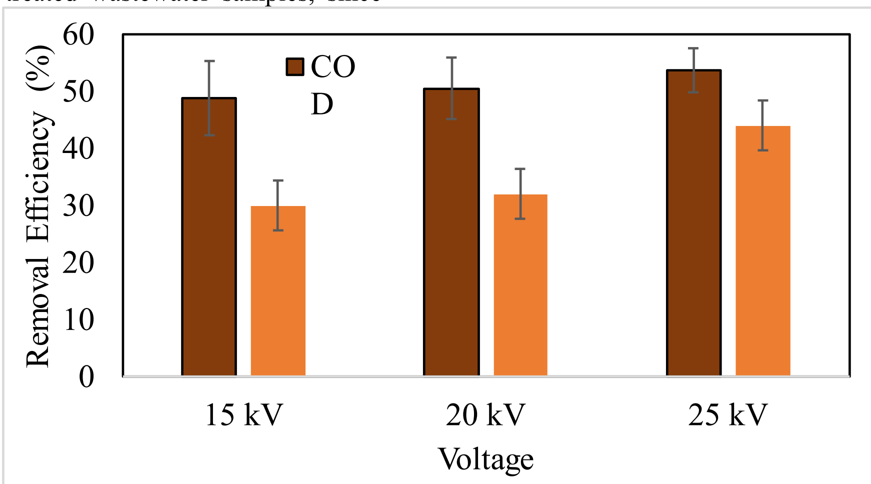

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Conclusions

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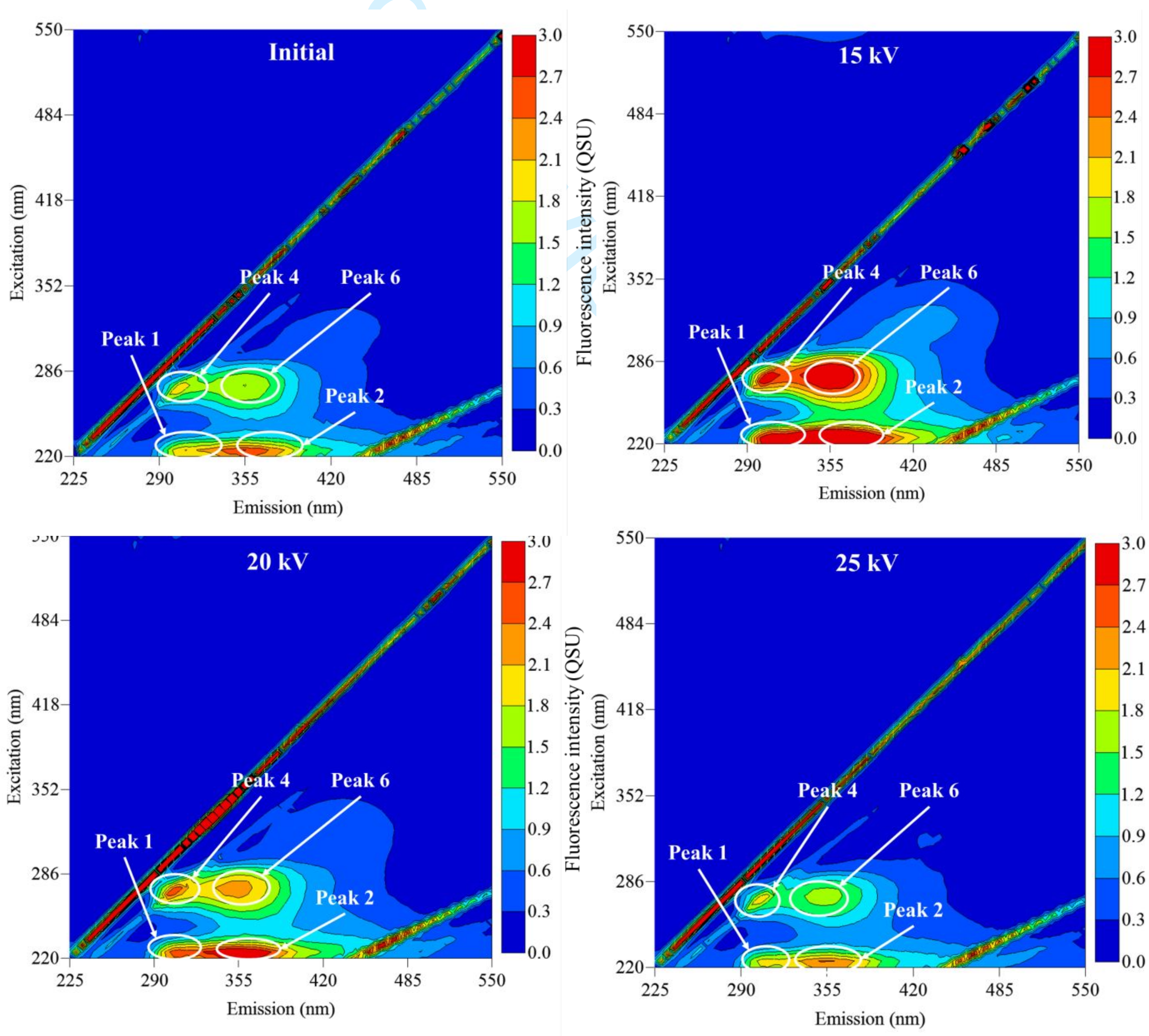

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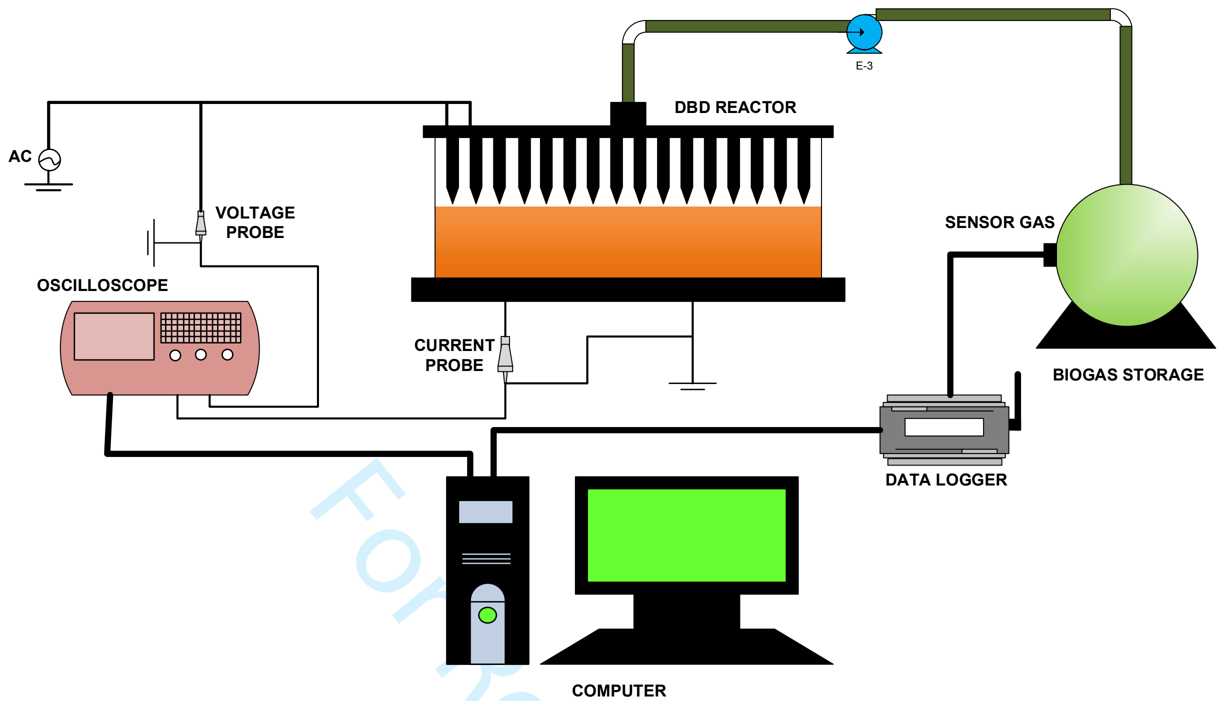

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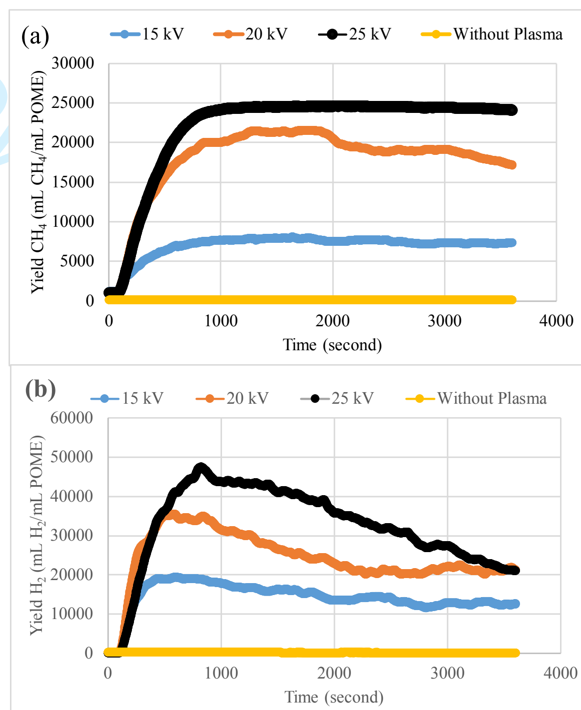

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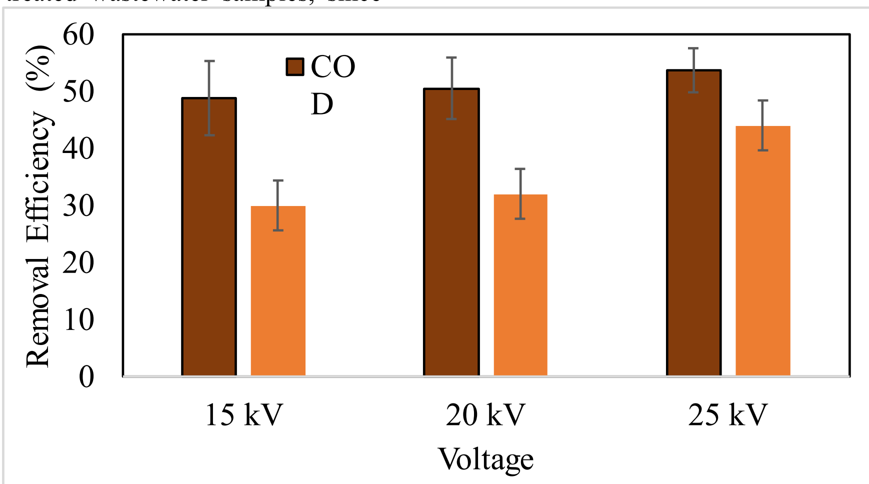

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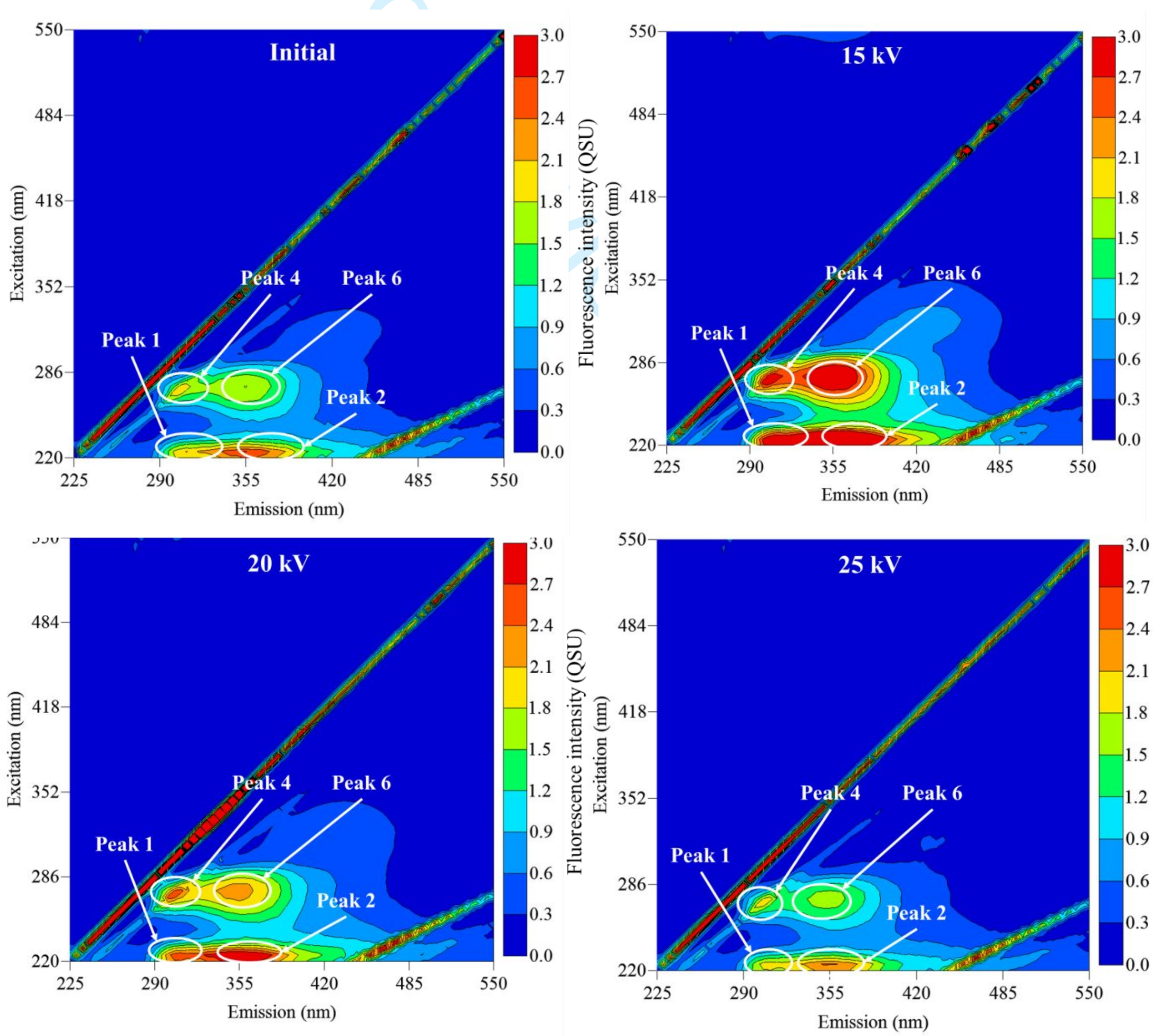

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