achieved higher removal for COD and color (42% and 53%, respectively), the effectiveness of simultaneous $S_2O_8^{2-}$/ Al_2SO_4 oxidation was higher than other applications. (67%, 82% and 47% removal for COD, color and ammonia, respectively).

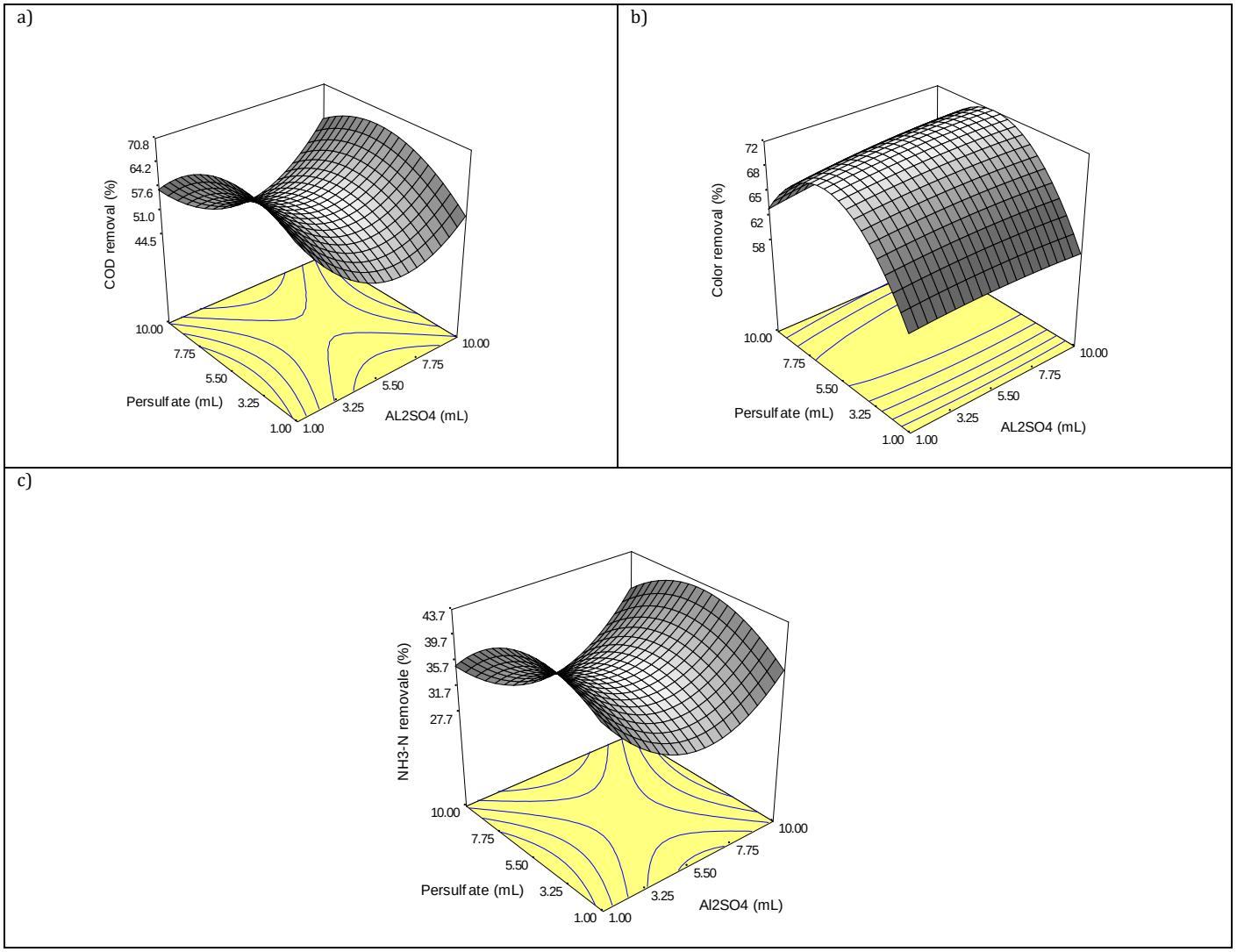

Figure 3: Three-dimensional response surface showing the effect of persulfate/Al_2SO_4 on (A) COD (B) color (C) and NH_3-N removal at 5.5 ml of persulfate and 105 min reaction time.

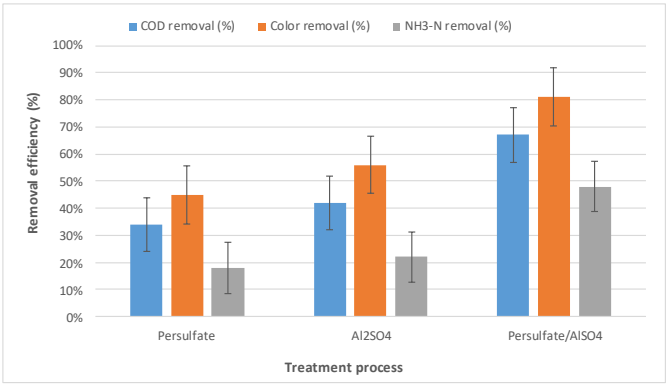

Figure 4: Comparison the performance of persulfate, Al_2SO_4 and combined persulfate/Al_2SO_4 for COD, color and NH_3-N removal.

4.CONCLUSION

In the current study, the performance of employing Al_2SO_4 to activate persulfate during oxidation of leachate was performed and evaluated. The optimum experimental conditions for the treatment was conducted with respect to operational conditions, namely, persulfate and Al_2SO_4 concentration, pH variation, and oxidation time. The performance of combined $S_2O_8^{2-}$ / Al_2SO_4 oxidation process is more efficient than the $S_2O_8^{2-}$ alone and Al_2SO_4 alone for leachate treatment. Accordingly, the combined $S_2O_8^{2-}$ / Al_2SO_4 treatment process improved the oxidation potential of organics and ammonia in landfill leachate.

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