Table1: Operating conditions and performance of TBAB under continuous loading conditions degrading chloroform and ethanol at pH 4

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Experimental Conditions and Removal Performance | | | | | |
| Phases of Operation | I | II | III | IV | V |
| Influent CHCl3 ppmv | 5 | 5 | 5 | 5 | 5 |
| Influent CHCl3 loading rate, g/m3.h | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |
| Influent ethanol concentration, ppmv | 25 | 50 | 100 | 150 | 200 |
| Influent ethanol loading rate, g/m3.h | 0.57 | 1.15 | 2.30 | 3.45 | 4.59 |
| Days of operation | 0-30 | 31-59 | 60-181 | 182-211 | 212-244 |
| Average CHCl3 removal efficiency, % | 69.9 | 71.6 | 75.1 | 78.4 | 80.9 |
| Standard deviation,% | 9.1 | 5.3 | 8.6 | 4.4 | 4.4 |
| Average chloroform elimination capacity, g/m3.h | 0.224 | 0.225 | 0.226 | 0.235 | 0.238 |
| Average ethanol removal efficiency, % | 99.9 | 99.9 | 99.4 | 99.8 | 98.6 |
| Standard deviation,% | 0.0 | 0.0 | 2.2 | 0.5 | 3.7 |

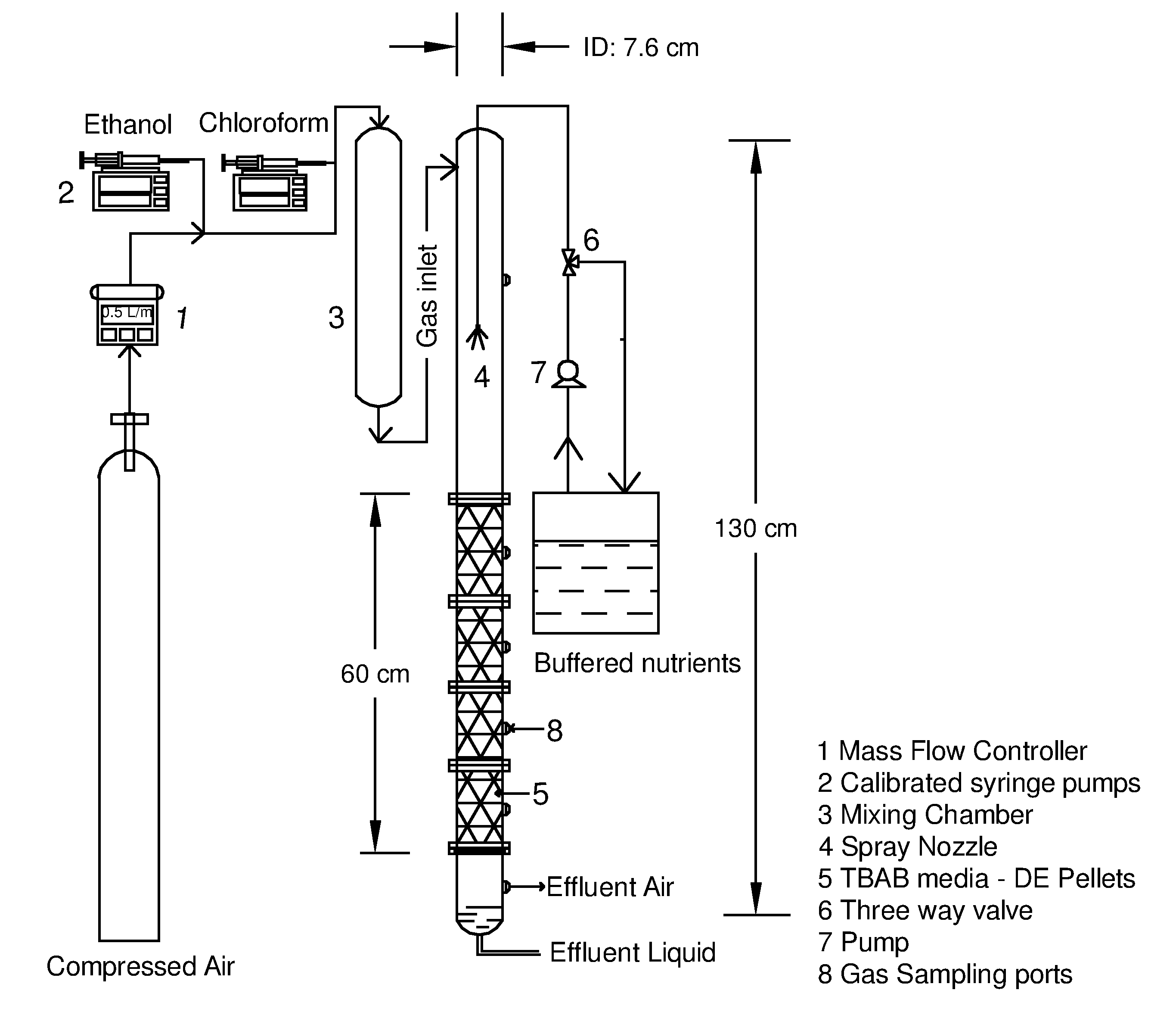
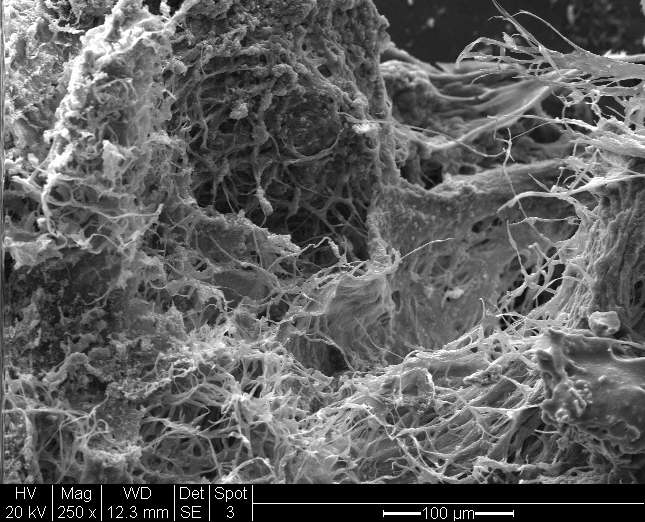
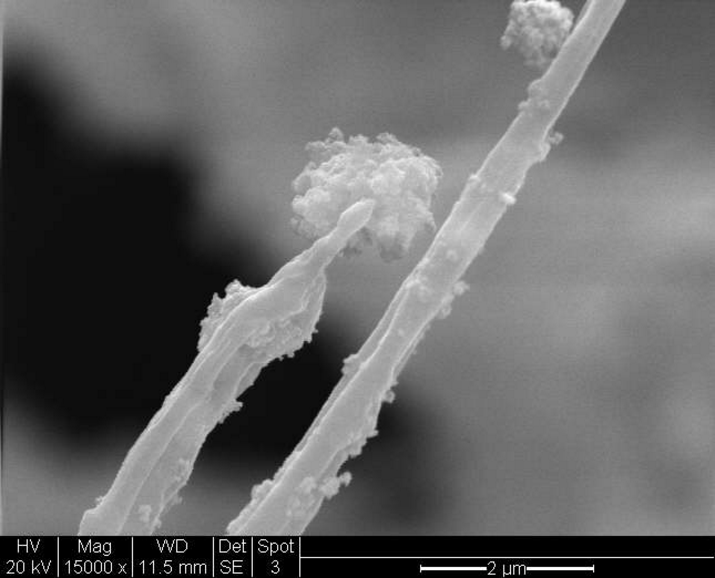


Fig1: Schematic of the trickle bed air biofilter



(A)

**(B)**

Fig 2a and Fig 2b: Surface Imagery of filamentous fungi produced by SEM analysis under 2µm and 100 µm magnification

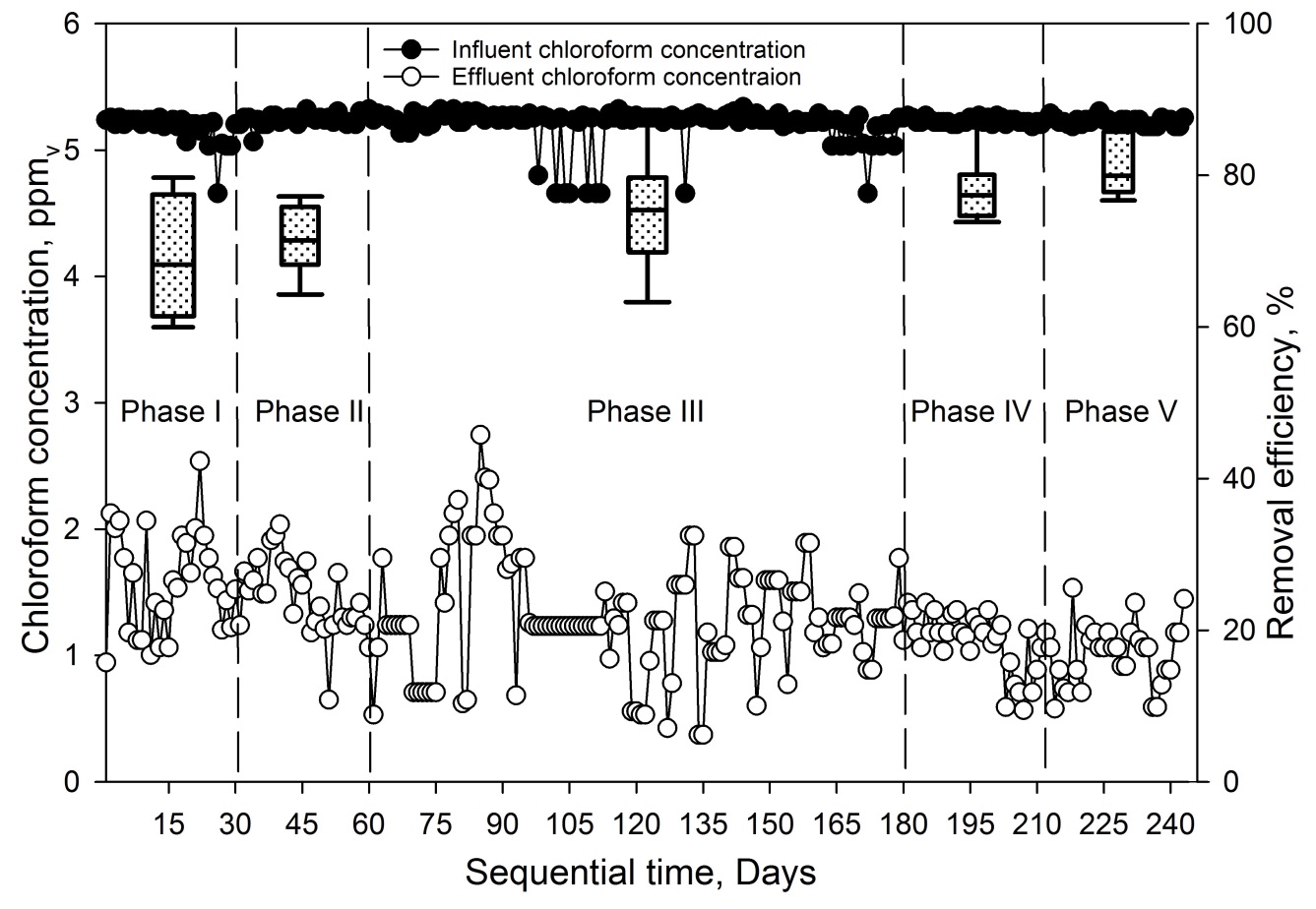


Fig3: Performance of the TBAB with sequential time for the removal of chloroform at pH 4

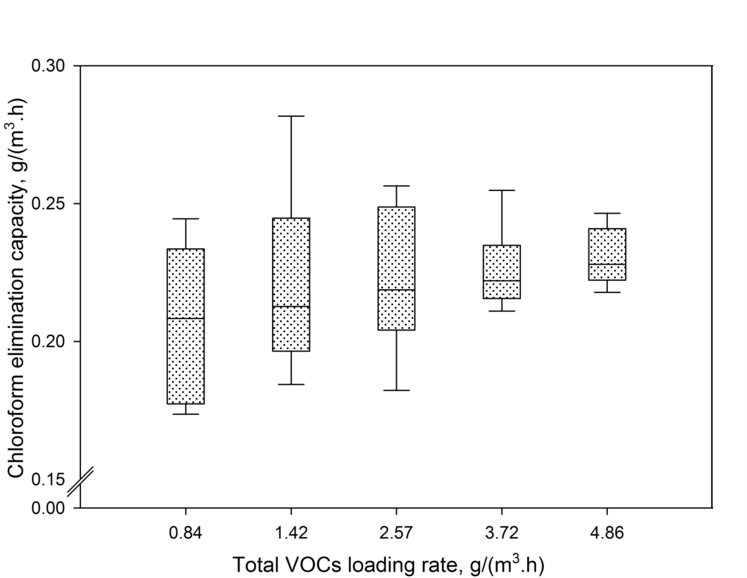


Fig4: Elimination Capacity of chloroform vs. total VOCs loading rates

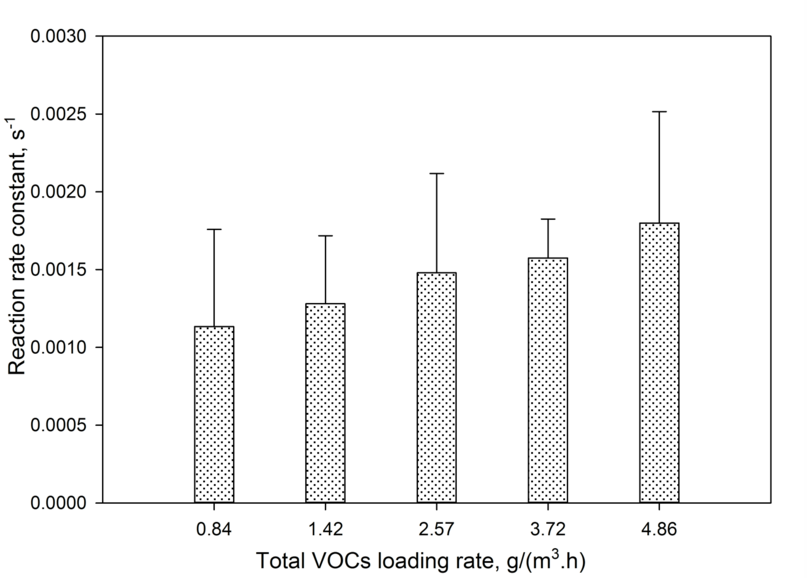


Fig 5: Reaction rate constants for chloroform vs. total VOCs loading rates

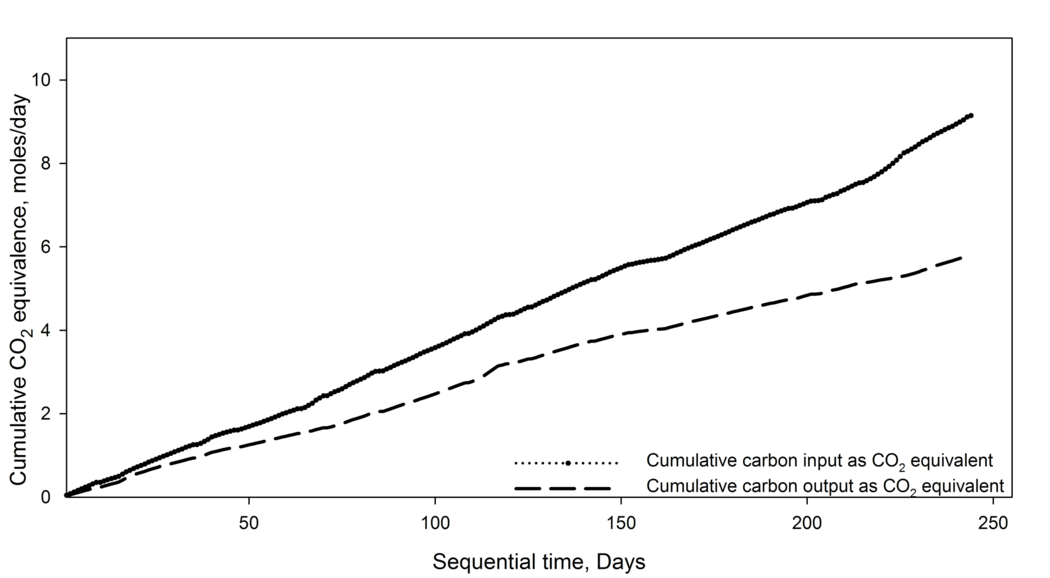


Fig 6: Cumulative carbon input/output as CO2 equivalent for the TBAB

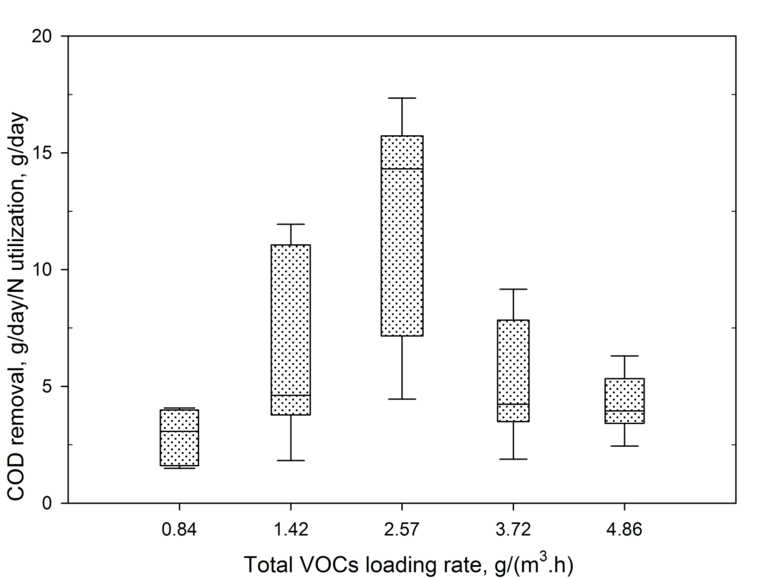


Fig 7: Chemical oxygen demand (COD) removal/nitrogen utilization vs. total VOCs loading rates for TBABs