**Anaerobic/aerobic treatment of greywater via UASB and MBR for unrestricted reuse**

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**ABSTRACT**

The aim of the present study was to investigate the efﬁciency of integrated up-ﬂow anaerobic sludge blanket (UASB) as anaerobic system followed by membrane bioreactor (MBR) as aerobic system for the treatment of greywater for unrestricted reuse. A pilot-scale of UASB and MBR units were installed and operated in the NRC, Egypt. Real raw greywater was subjected to UASB and the efﬂuent was further treated with microﬁltration MBR. The necessary trans-membrane pressure difference is applied by the water head above the membrane (gravity ﬂow) without any energy input. The average characteristics of the raw greywater was 95, 392, 298, 10.45, 0.4, 118.5 and 28 mg/L for TSS, COD, BOD, total phosphates, nitrates, oil and grease and TKN, respectively. The pH was 6.71. The UASB treatment efﬁciency reached 19.3, 57.8, 67.5 and 83.7% for TSS, COD, BOD and oil and grease, respectively. When the UASB efﬂuent further treated with MBR, the overall removal rate achieved 97.7, 97.8, 97.4 and 95.8% for the same parameters successively. The characteristics of the ﬁnal efﬂuent reached 2.5, 8.5, 6.1, 0.95, 4.6 and 2.3 mg/L for TSS, COD, BOD, phosphates, oil and grease and TKN, respectively. This ﬁnal treated efﬂuent could cope with the unrestricted water reuse of local Egyptian guideline.