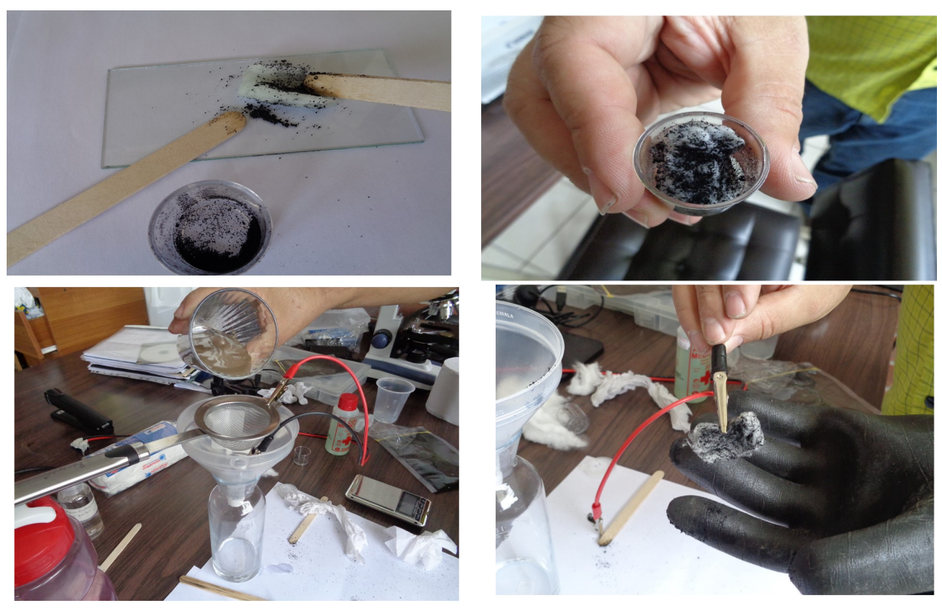
Waste water treatment through MWCNTs nanomembranes

Christian Argueta, Jorge Iván Cifuentes

jicifuentes@ing.usac.edu.gt

MWCNT's were used to manufacture Nano membranes with cotton as support. Brown water with organic matter and other contaminants was filtered.



A 9.5 volt alkaline battery was used for separation of pollutants by electric charge or electro separation.



Figure 1.

Characterization and analysis in the water laboratory of the engineering research center, microbiological and physicochemical analysis were carried out.

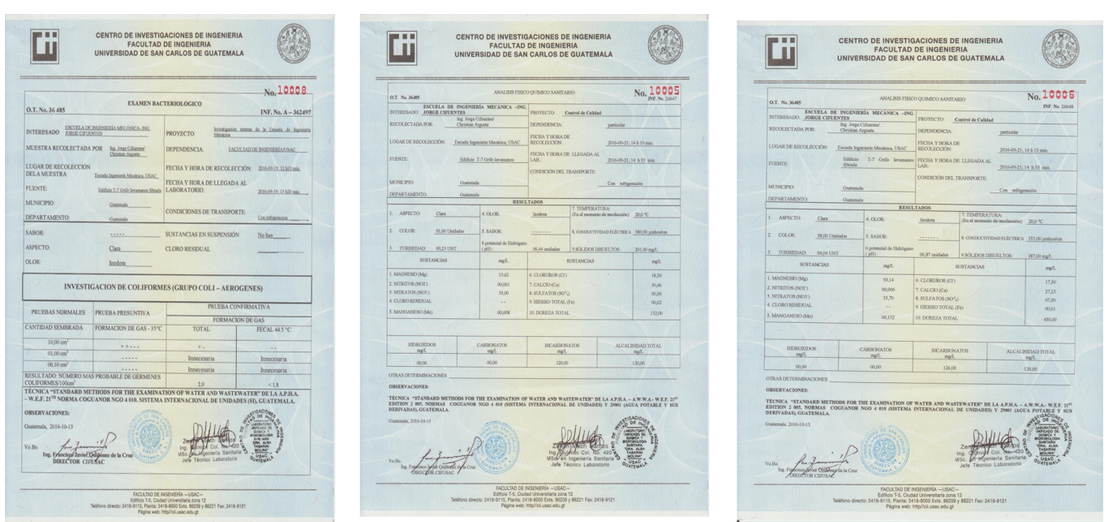


Figure 2.

Total coliforms and water Ph

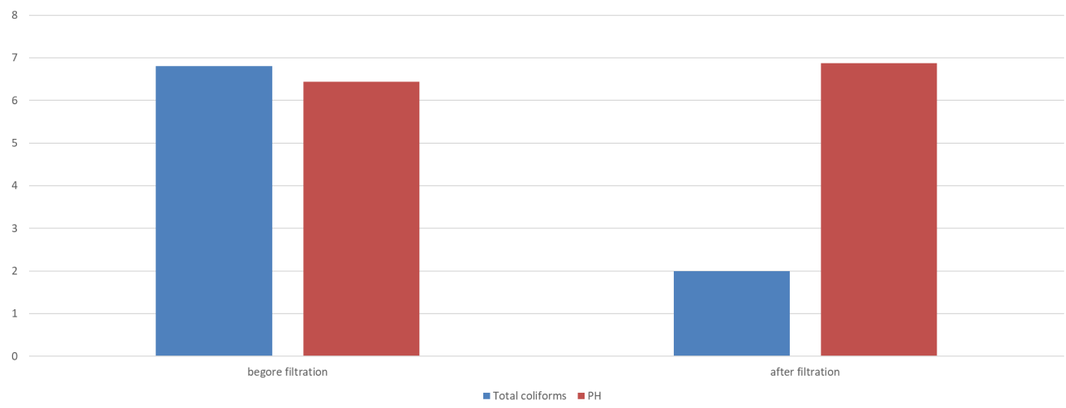


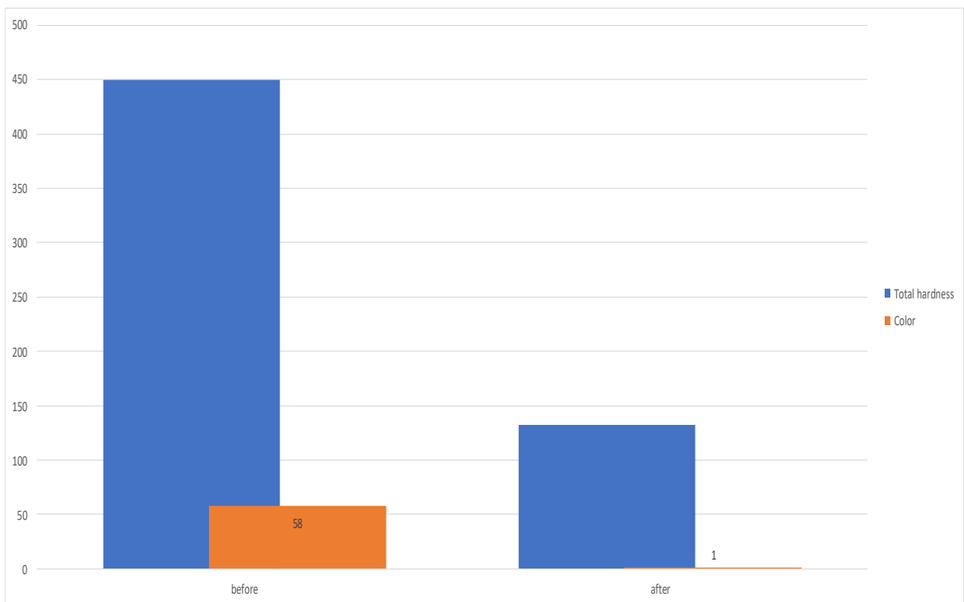
Figure3.

Experimental results

Water pollutants	Before filtration	After filtration
Total Coliforms	6.8 per 100 ml	2.0 per 100 ml
PH	6.87 mg/l	6.44 mg/l
Turbidity	4.04 mg/l	0.23 mg/l
Total hardness	450 mg/l	132 mg/l
Color	58 units	1.0 unit
Magnesium	93.14 mg/l	13.62 mg/l
chlorides	18.5 mg/l	17.50 mg/l
Calcium	30.46 mg/l	27.25 mg/l
Sulfates	7.0 mg/l	6.0 mg/l
Manganese	0.132 mg/l	0.08 mg/l
Alcalinity and bicarbonates	126 mg/l	120 mg/l

Figure 4.

Total hardness and color



The results showed that Escherichia Coli was reduced from 6.8 per 100 ml to 2.0 per 100 ml, Turbidity obtained after nanofiltration was reduced from 4.04 to 0.23 mg/l; Magnesium content was reduced from 93.14 mg/l to 13.62 mg/l, total hardness was reduced from 450 mg/l to 132 mg/l, the color diminished from 58 units to 1.0 units, and Ph got reduced from 6.87 to 6.44.

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