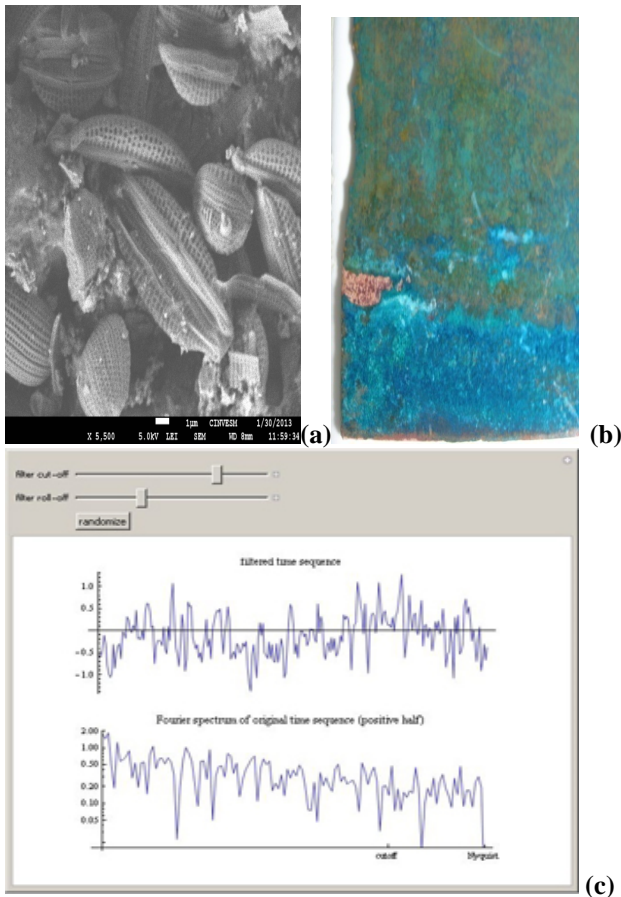


## Corrosion behavior of copper patina in presence of marine biofouling

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For engineering purposes copper is commonly used material for metallic constructions submerged in seawater where it should support the corrosive aggressiveness of the chlorides and the complex composition of that marine electrolyte. Besides, there are biological (macro- and micro-fouling) factors determine the type of corrosion attack and the rate on metal. Copper corrosion products could contaminate the surrounding environment and protect or not the metal surface against the biofouling and the advance in the corrosion rate. During 9 months the corrosion potential (o.c.p.) of Cu samples was monitored in Caribbean seawater and the oscillation were characterized using the fractals. The results revealed that there is a correlation between the rate changes in copper patina formation and its response to the first micro-foulers, known as *diatoms*. XRD spectra and SEM images helped as additional information in that aspect. The analysis of seawater during the period of exposure of the samples showed that there is liberation (runoff) of copper ions into the water, besides the formed corrosion product on the metal surface.



**Fig.1:** (a) Diatoms (micro-fouling) formed on (b) Cu surface in seawater and corrosion potential oscillations (c).