Electronic Supplementary Material (ESI) for RSC Advances

Supporting Information File

Electromodulated Release of Nitric Oxide Through Polymer Material from Reservoir of Inorganic Nitrite Salt

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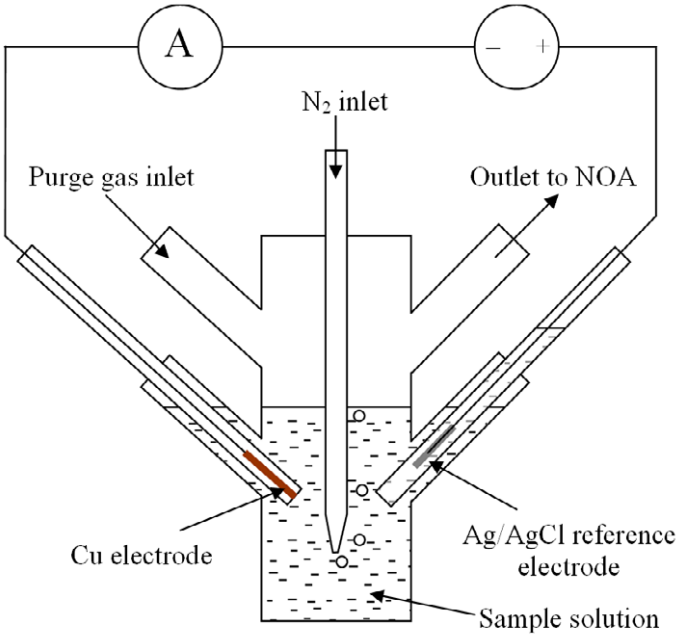

Figure 1S. Scheme of the electrochemical generation of nitric oxide with Cu electrode (1 mm in diameter), and the transfer of nitric oxide to the nitric oxide analyzer (NOA).

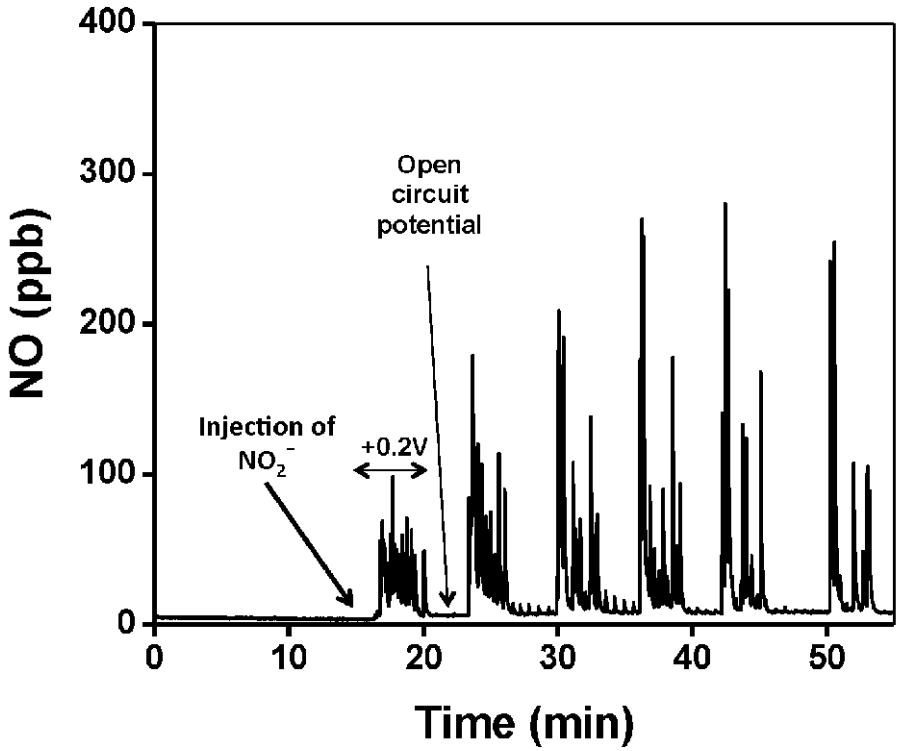

Figure 2S. Electrochemical generation of NO from NO_2^- solution. The 1 mm copper electrode was first pulsed at -0.92 V (vs. Ag/AgCl) or -0.70V vs. NHE for 3 min in absence of NO_2^-. The potential at the copper electrode was then switched to +0.2 V (vs. Ag/AgCl) or +0.4V vs. NHE and immediately 1 mL of 1(M) $NaNO_2$ solution was injected in 9 mL solution containing 10 mM Phosphate buffer and 50 mM EDTA and 10 mM of NaCl. The copper electrode was subsequently pulsed between +0.2 V and open circuit potential to turn "on" and "off" the NO generation. The experimental setup used in this experiment was similar to Figure 1S schematics, exept that a three-electrode system was used in this experiment to maintain a more controlled fixed potential while pulsing negative and positive potentials. A 0.5 mm Pt wire and Ag/AgCl electrode were used as counter and reference electrode, respectively.

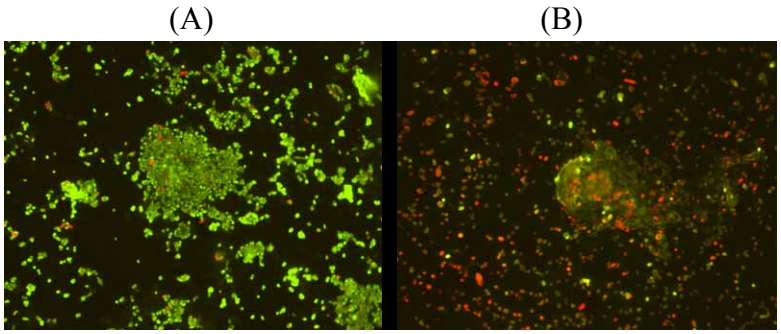

Figure 3S. Representative micrographs of biofilms formed on the NO release probes. The probes were stained with fluorescent dyes (SYTO-9 and Propidium iodide) for 20 min in dark according to the instruction of LIVE/DEAD® BacLight™ Bacterial Viability kit (L7012, Invitrogen, USA) then was put on a glass slide before being observed with a fluorescence microscope (Olympus 1X71, Center Valley, PA) equipped with Fluorescence Illumination System (X-Cite 120, EXFO) and appropriate filter sets. Images were obtained using an oil immersion 60 × objective lens. (A) Biofilms formed on the probes w/o NO release and (B) Biofilms formed on the probe with NO release. Red dots indicate dead cells and green dots indicate viable cells.