

NOS-based multi-layered polymeric thin films

Charbel Abou Diwan and Mekki Bayachou

Cleveland State University

Chemistry Department, 2399 Euclid Avenue, Cleveland,
Ohio 44115.

Nitric oxide (NO), an important physiologic player, is synthesized *in vivo* by nitric oxide synthases (NOSs). NO plays a critical role in vasodilation, neurotransmission, and in host-defense. Layer-by-layer (LBL) electrostatic adsorption allows for assembly of multi-component protein thin films. Preparation of NOS-based multi-layered polymeric thin films via the LBL electrostatic adsorption is reported. Characterization of the resulting thin films using electrochemical techniques, spectroscopic techniques (UV/Vis, FTIR), atomic force microscopy (AFM), and quartz crystal microbalance (QCM) will be reported. *In vitro* evaluation of the multi-layered thin films using QCM, phase contrast and fluorescence microscopy, electrochemical, and colorimetric assays will be reported.