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Surface engineering and adhesion modification of SAM surfaces of 1-mercaptoundecanoic acid 1-undecanethiol: confining Bacillus subtilis[1] ROSE PASQUALE, LAUREN SWIGER, JOSEPH CALABRESE, RESHANI SENEVIRATHNE, INDRAJITH SENEVIRATHNE, Lock Haven University of Pennsylvania — Engineering surfaces for adhesion and confinement of bacteria is interesting towards development of respective biosensors, and to understand the interactions between biological systems and molecular layers. Investigation was focused on modification of surfaces towards confinement and entrapment of the non-pathogenic strain Bacillus subtilis or Bacillus pathogenic/non pathogenic variants and to study surface engineering. Clean, flat Au(111) on mica surfaces were used for self assembly for Self Assembled Monolayers (SAM). 1-mercaptoundecanoic acid and 1-undecanethiol were used at total 5 mM solutions in varying ratios, in 200 proof Ethanol solution. Resulting SAM layers were investigated for surface corrugation, morphology and structure variation at different thiol ratios. Observations will be discussed, quantitatively and qualitatively. Eventual mixture ratios were so selected towards optimum conditions for confining Bacillus subtilis as a model system. SAM surfaces were investigated using intermittent contact, noncontact, lateral force and contact modes of Atomic Force Microscopy (AFM).

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