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Surface engineering and adhesion modification of SAM surfaces of 1-dodecanethiol, and 3-mercapto-1-propanol: confining Escherichia coli[1] KRISTA SITLER, KARISA BOWERSOX, JOSEPH CALABRESE, Biology, Lock Haven University, Lock Haven PA 17745, United States, RESHANI SENEVIRATHNE, Don's Food Products, Schwenksville, PA 19473, United States, INDRAJITH SENEVIRATHNE, Geology and Physics, Lock Haven University, Lock Haven PA 17745, United States — Engineering surfaces for adhesion and confinement of bacteria is interesting towards development of respective biosensors, and correlation of biological systems and molecular layers. Investigation was focused towards modification of surfaces towards confinement and entrapment of the nonpathogenic strain Escherichia coli or similar pathogenic strains and to study surface engineering. Clean, flat Au(111) on mica surfaces were used for self assembly for Self Assembled Monolayers (SAM). 1-dodecanethiol, and 3-mercapto-1-propanol 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 Escherichia coli 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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