

Mechanistic studies of microbial adhesion to a solid surface

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In this studies of cell adhesion to solid surface, silica particles of a few mm size were used as sorbents. Then surface defects of the sorbent, cell sedimentation rather than cell adhesion, and the reproducibility problem of experimental data have inhibited the derivation of reliable conclusion of cell adhesion mechanisms. To solve these problems, we are to employ nano-sized particles as a sorbent for cell adhesion. It has been known that electrostatic and/or hydrophobic interactions are involved in the cell adhesion. By using nano-polymeric particles made of urethane acrylate nonionomer whose surface is modified with polypropylene oxides, we studied the effect of hydrophobic interaction independently and quantitatively.