

World Applied Sciences Journal 2013 vol.23 N4, pages 507-509

Scanning probe microscopy in the study of morphometric changes and physical parameters of *Escherichia coli* bacteria under the action of 2,4,6 - Trinitrotoluene

Konovalova O., Yakovleva G., Steryakov O., Trushin M.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Using scanning probe microscopy (SPM) were registered characteristic structural changes in *Escherichia coli* K12 cells under the influence of 2,4,6-trinitrotoluene (200 micrograms / ml). According to SPM data, changes were detected not only in the size of cells, but also in the structure of the cell wall. In the presence of TNT, the cell wall becomes less rough, flagellas and pils tend to be absent. However, the height of bacteria does not change. The data of force spectroscopy also showed differences in adhesion forces between the probe and the surface of the bacterial cell wall. In *Escherichia coli* K12 incubated with TNT there was a tendency to decrease an adhesive force compared with the control. © IDOSI Publications, 2013.

<http://dx.doi.org/10.5829/idosi.wasj.2013.23.04.13077>

Keywords

Escherichia coli, Scanning probe microscopy, Trinitrotoluene