MEASUREMENT OF BIMOLECULAR VALENCE BAND ENERGY STRUCTURE OF ERYTHROCYTE AFTER BIO-PLASMA TREATMENT

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We have investigated the responses of erythrocytes to nonthermal bio-plasma treatment in morphological and biomolecular aspects. The morphology of erythrocytes has been changed from discocytes to echinocytes by nitrogen plasma, and bio-molecules have been shown to be oxidized by air plasma. For the surface energy analysis in the valence band of erythrocyte under influence of bio-plasmas, ion-induced secondary electron emission coefficient have been investigated by using the gamma-focused ion beam (γ-FIB) system, based on the quantum mechanical Auger neutralization theory. These data have been analyzed and discussed with the changes of morphology, bio-molecular surface energy structures and Raman spectra.

1. Donald R.H. Wallach and Surendra P. Verma, Raman and resonance raman scattering by erythrocyte ghost, Biochimica et Biophysica Acta 382 (1975)542-551

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