

**The dielectric behavior of  $\gamma$ -irradiated keratin**

Ewa Marzec, Leszek Kubisz, Feliks Jaroszyk

Dielectric measurements as a function of temperature and frequency are reported for non-irradiated and  $\gamma$ -irradiation keratin with doses of 5 and 50 kGy. The effect of  $\gamma$ -irradiation on the dielectric permittivity of keratin is not observed up to 190°C. In this temperature range, the values of the relaxation time and dipole moment are similar for non-irradiated and irradiated keratin at the same temperature. The influence of irradiation is manifested as a shift of the peak parameter ( $\epsilon_s - \epsilon_\infty$ ) associated with denaturation process towards lower temperatures. This finding is supported by lower values of the dipole moment for irradiated than for non-irradiated keratin, as a result of a decrease in the number of polar groups in the side and main chains of macromolecule in the irradiated samples.