

**EPR investigation of irradiated seeds using nitroxide spin probes**

M. Maral Sünnetçioğlu, Dilek Dadaylı Pakta, İsmail Ercan

Membrane permeability changes in wheat and rice embryos as a result of irradiation and re-irradiation were investigated in a temperature range of 223-303 K, using spin probe technique. Aqueous solutions of 4-oxo-TEMPO (TANON) together with line broadening material potassium ferricyanide and 16-doxyl stearic acid (16-DS) were used in the studies. For TANON, the high field line is well resolved into water and lipid parts. The intensity ratio of these peaks  $I_{\text{water}} / I_{\text{lipid}}$  was followed as a function of time for 150 minutes. The values were calculated from recorded spectra. Dependent on the absorbed dose of an exponential decay was observed for both types of seeds. The decay of rice was slower than wheat. Since rice was irradiated in the husk, a decrease in the absorbed dose is an expected result. Irradiated seeds were re-irradiated at the same absorbed doses and effects of this second irradiation investigated. In the studied temperature range, differences were observed between irradiated and control samples for both TANON and 16-DS.