Project Title

Determination of Radiation Sensitivities of Some Preservatives Used as Food Additive by Electron Spin Resonance (ESR) Spectroscopy

Abstract

Radiation sterilization is used in many countries more than a decade. World Health Organization (WHO) was accepted 10 kGy for food stuff as maximum radiation doses for sterilization.

Electron spin resonance (ESR) or electron paramagnetic resonance (EPR) is a spectroscopic technique that directly detects species with unpaired electron. ESR can be used to estimate the applied radiation doses from radiation induced radicals that have unpaired electrons. Electron spin resonance (ESR) dosimetry with l-alanine has become a standard technique at the IAEA for measurements of high doses.

Structural and kinetic features of radical species produced in food additive preservatives after radiosterilization can be determined by ESR. Identifying the effects of radiation on these species is important from their preservative characteristics point of view. Therefore determination room and high temperature stabilities of radicals are important. Furthermore the usefulness as dosimetric material and dosimetric features of these species can be determined.

Keywords

Radyosterilization; Radical; Electron Spin Resonance; Kinetic; Radiation dose