

EFFECT OF RADIO-FREQUENCY ENERGY ON BIOLOGICAL MACROMOLECULES

Kamat

Macromolecule	Frequency (MHz)	Effect	Reference
Human Gamma Globulin	13.12 (37.5 °C)	Change of a single peak to double peak Increased antigenic activity	1
Hog Pancreatic Crystalline Amylase	11.970, 12.087	Inactivation of the enzyme	1
Human ^{Bovine} Gamma Globulin	13.10 (25 °C)	Changes in solubility	2
Horse Serum Choline Esterase	13.12	Decrease in activity at 5% serum concentra- tion but no change in activity at 8% Increase in surface reactivity Temperature and frequency modulation technique 100% reproducible	2
Hog Pancreatic Crystalline Amylase	11.3 to 12.6 13.0 to 13.8	Inactivation of enzyme sometimes up to 30% No inactivation of enzyme or greater enzyme activity at other times	3
Chymotrypsin	11.6 to 11.9	No inactivation of enzyme up to 4 hr. irradiation. Enzyme inactivation (30%) after 10.75 hr. irradiation. No significant inactivation at frequencies far greater or far less	3
Yeast-Alcohol Dehydrogenase	1.0 to 60.0	No change in activity if no rise in temperature Enzyme inactivation if temperature rises	4
Bovine Serum Albumin Bovine Hemoglobin	1.0 to 60.0	No change in viscosity or chromatographic pattern	4
Calf Thymus DNA	1.0 x 10 ⁻⁵ to 0.01 0.1 to 10	No change in specific viscosity No change in optical density	4

1. Sven A. Bach, Dig. Intern. Conf. Med. Electron. 4th, p. 152, 1961.

2. Melpar Inc., Research Div. (AD 284 373) 1962.

3. Melpar Inc., Research Div. (AD 618 472) 1965.

4. Shiro Takashima, IEEE Trans. on Bio-Med. Engineering, BME-13 No. 1, P. 28-31, 1966. *Je card**also
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