

Medical/biological Study (experimental study)**Clastogenic effects of radiofrequency radiations on chromosomes of Tradescantia.**

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Aim of study (according to author)

To determine the clastogenic effect of radiofrequency radiation in an *in situ* experiment with the Tradescantia micronucleus test (Trad-MCN-test).

Background/further details:

The assay was used as a monitor to find out whether short-wave electromagnetic fields in the vicinity of broadcasting antennae could cause chromosome damage.

Endpoint

- genotoxicity/mutation: clastogenic effects/formation of micronuclei

Exposure

Field characteristics	Parameters
10 - 20 MHz amplitude modulation exposure duration: 30 hrs	electric field strength: 400 mV/cm (in wooden chamber 30 m from slewable curtain antenna) electric field strength: 700 mV/cm (in wooden chamber 30 m from the vertical cage antenna at 14 MHz) electric field strength: 400 mV/cm (in mesh cage 30 m from the slewable curtain antenna at 10 MHz) electric field strength: 900 mV/cm (in wooden chamber 15 m from the vertical cage antenna at 14 MHz) magnetic field strength: 110 mA/m (in mesh cage 10 m from the slewable curtain antenna at 18-21 MHz) electric field strength: 10 mV/cm (to 3 V/m; in wooden chamber 200 m from the broadcasting area) electric field strength: 650 mV/cm (to 170 V/m; in a mesh cage at 10 m from the slewable curtain antenna at 18-21 MHz)

Exposed system:

plant (species/strain): *Tradescantia* (plant cuttings of clone #4430)

whole body exposure

Methods

Endpoint/Measurement parameters/Methodology

- genotoxicity/mutation: frequency of micronuclei (analyse of early tetrad stage; Tradescantia micronucleus test (Trad-MCN-test))

investigated material: DNA/RNA (in vitro), intact cell/cell culture (in vitro), pollen mother cells; chromosomes

time of investigation: after exposure

Main outcome of study (according to author)

At all exposure sites in the immediate vicinity of the antennae a statistically significant increase of

micronucleus formation was found. Since the parallel exposure in a non-shielding and a shielding cage also revealed significant differences in micronucleus frequencies, the clastogenic effects are attributable to the short-wave radiation from the antennae.

(Study character: medical/biological study, experimental study, full/main study)

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