

**EMR and plants:
published papers in peer-reviewed scientific journals
that show (possible) EMR effect**

<http://www.livingplanet.be/emrplants.htm>

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Current work: [Research Institute for Nature and Forest \(INBO\)](#). Environmental Vulnerability Maps, Environmental Impact Assessments, Impact of wind turbines, communication towers and power lines on birds and bats.

(Click on title. It will take you to the abstract of each paper.)

Review paper

A review of the ecological effects of radiofrequency electromagnetic fields (RF-EMF)

Cucurachi et al. (2013) Environment International 51:116–140

Other papers

Microwave irradiation affects gene expression in plants

Vian et al. (2006) Plant Signaling & Behavior 1:67-69

High frequency (900 MHz) low amplitude (5 V m(-1)) electromagnetic field: a genuine environmental stimulus that affects transcription, translation, calcium and energy charge in

tomato

Roux et al. (2008) *Planta* 227:883-891

Plants Respond to GSM-Like Radiations

Vian et al. (2007) *Plant Signaling & Behavior* 2:522-524

Influence of 400, 900, and 1900 MHz electromagnetic fields on *Lemna minor* growth and peroxidase activity

Tkalec et al. (2005) *Bioelectromagnetics* 26:185-193

A possible role for extra-cellular ATP in plant responses to high frequency, low amplitude electromagnetic field

Roux et al. (2008) *Plant Signaling & Behavior* 3:383-385

Mobile phone radiation inhibits *Vigna radiata* (mung bean) root growth by inducing oxidative stress

Sharma et al. (2009) *Science of The Total Environment* 407:5543-5547

Low-frequency electromagnetic fields induce a stress effect upon higher plants, as evident by the universal stress signal, alanine

Monselise et al. (2003) *Biochemical and Biophysical Research Communications* 302:427-434

A preliminary study on ultra high frequency electromagnetic fields effect on black locust chlorophylls

Sandu et al. (2005) *Acta Biologica Hungarica* 56:109-117

Response of *Pinus sylvestris* L. needles to electromagnetic fields. Cytological and ultrastructural aspects

Selga and Selga (1996) Science of The Total Environment 180:65-73

Cytogenetic changes induced by low-intensity microwaves in the species *Triticum aestivum*

Pavel et al. (1998) Rev Med Chir Soc Med Nat Iasi 102:89-92

Ultrastructure and calcium balance in meristem cells of pea roots exposed to extremely low magnetic fields

Belyavskaya (2001) Advances in Space Research 28:645-650

Biological effects due to weak magnetic field on plants

Belyavskaya (2004) Advances in Space Research 34:1566-1574

Growth of etiolated barley plants in weak static and 50 Hz electromagnetic fields tuned to calcium ion cyclotron resonance

Pazur et al. (2006) Biomagnetic Research and Technology 4:1

The influence of a low- and high-frequency electromagnetic fields on seeds

Kalinin et al. (2005) Biofizika 50:361-366

On the mechanisms of stimulation and inhibition during germination of wheat seeds in extremely low frequency electromagnetic fields

Aksenov et al. (2007) Biofizika 52:332-338

The biological effect of extremely low frequency electromagnetic fields and vibrations on barley seed hydration and germination

Amyan and Ayrapetyan (2004) ScientificWorldJournal 4 Suppl 2:55-69

Perturbations of plant leaflet rhythms caused by electromagnetic radio-frequency radiation

Ellingsrud and Johnsson (1993) *Bioelectromagnetics* 14:257-271

Electromagnetic fields may act directly on DNA

Blank and Goodman (1999) *Journal of Cellular Biochemistry* 75:369-374

Plant sensitivity to low intensity 105 GHz electromagnetic radiation

Tafforeau et al. (2004) *Bioelectromagnetics* 25:403-407

Clastogenic effects of radiofrequency radiations on chromosomes of *Tradescantia*

Haider et al. (1994) *Mutation Research* 324:65-68

Magnetoreception in plants

Galland and Pazura (1995) *Journal of Plant Research* 118:371-389

Detection and Learning of Floral Electric Fields by Bumblebees

Clarke et al. (2013) *Science*, online DOI: 10.1126/science.1230883

Low-frequency electromagnetic fields induce a stress effect upon higher plants, as evident by the universal stress signal, alanine

Monselise et al. (2003) *Biochemical and Biophysical Research Communications* 302:427-434

Sims study of the calcium-deprivation step related to epidermal meristem production induced in flax by cold shock or radiation from a GSM telephone

Tafforeau et al. (2002) *Journal of Trace and Microprobe Techniques* 20:611-623

The effect of electromagnetic radiation from the Skrunda Radio Location Station on *Spirodela*

polyrhiza (L.) Schleiden cultures

Magone (1996) Science of The Total Environment 180:75-80

Does the Skrunda Radio Location Station diminish the radial growth of pine trees?

Balodis et al. (1996) Science of The Total Environment 180:57-64

EMR and plants: not (yet) published papers,

that show (possible) EMR effect

The effects of microwaves on trees and other plants

Balmori

Microwave smog and forest damage

Volkrodt