

Rose of Jericho Counters Extremely Low Frequency Electromagnetic Fields Dependent Cognitive and Behavioral Changes in Rats

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ABSTRACT

The substantial increase in human exposure to extremely low-frequency electromagnetic fields (ELF-EMFs) from mobile phones, domestic appliances, and power lines has raised concerns about their potential impact on cognitive functions. While some studies report cognitive improvements linked to ELF-EMFs via mechanisms such as increased neurogenesis and neurotrophic factor activity, others document negative outcomes like oxidative stress, DNA damage, anxiety-like behaviors, and cognitive impairment. This study evaluates the therapeutic potential of the Rose of Jericho on the cognitive and neuromotor functions in rats exposed to ELF-EMF. Thirty male Wistar rats were randomly divided into three groups: control, ELF-EMF exposed, and ELF-EMF exposed treated with Rose of Jericho. Rats were subjected to a 7-day ELF-EMF exposure protocol (50 Hz, 1 mT) and evaluated using the Morris Water Maze (MWM) for spatial memory, Elevated Plus Maze (EPM) for anxiety behavior, and Rotarod test for motor coordination. ELF-EMF exposure led to significant cognitive and behavioral impairments, including prolonged test duration in MWM, increased anxiety-like behavior in EPM, and reduced motor performance. Treatment with Rose of Jericho significantly reversed these effects, improving spatial memory, reducing anxiety, and improving motor coordination. Exposure to ELF-EMF impairs spatial memory, behavior, and motor coordination in rats. Rose of Jericho exhibits neuroprotective effects and may serve as a potential therapeutic agent against ELF-EMF-induced dysfunction. Further studies are warranted to confirm these findings and explore underlying mechanisms.

Keywords: *Rose of Jericho, extremely low frequency, electromagnetic fields, memory, learning, cognition, behavior, motor coordination, stress.*

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