



Enhancement of hind limb regeneration in the toad, *Bufo regularis* Reuss via alternating current stimulation

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Abstract:

This work is a trial to evoke hind limb regeneration by application of alternating electric current of different wave shapes; sine, square and triangular with different frequencies; 50, 500, 5000 and 50000 Hz. It was found that application of an alternating electric current with different wave shapes partially enhances limb regeneration in the prometamorphic stage (number 56) of *Bufo regularis* Reuss after amputation at the mid shank level. Regenerates were ranging from limbs with complete number of toes to hypomorphic limbs without toes. The enhancing effect was suggested to be due to stimulation of both the active sites of epithelial DNA, which are involved in the transcription processes. And nerve regeneration. Square and sine waves produced more enhancing effect due to being at peak maximum for periods relatively longer than triangular waves. Application of 50 Hz and 50000 Hz was more effective than that of 500 Hz and 5000 Hz, suggesting its interference with the natural regeneration current to produce the most compatible frequencies creating resonance with the stump tissues.

Keywords:

Limb regeneration, *Bufo regularis*, electrical stimulation, alternate current

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