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## Accelerating the healing mechanism of *Pseudomonas aeruginosa* contaminated injuries by ELF electromagnetic waves of resonance frequency for collagen molecules: A new method

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Injuries infected with *Pseudomonas Aeruginosa* (PS) suffer from slow and resistant healing process. In a previous work it was found that PS activity was inhibited after being exposed to 0.8 Hz electromagnetic waves (EMW) for 1 h. Therefore, in this work, a new method was used to accelerate healing process of PS contaminated injuries by activation of collagen in the injured area with the inhibition of PS activity. The resonance frequency of collagen molecules was determined by dielectric relaxation study. The results indicated that dielectric relaxation of the collagen molecules was at 1 MHz. 45 rats were subjected to injuries in the thigh and equally divided into three groups named A, B, and C. In group B and C injuries in rats were contaminated with PS. Animals of group C were exposed to a amplitude modulated waves (AMW) of 1 MHz carrier frequency and 0.8 Hz modulation frequency for a period of 3 days at a rate of 1 h per day. The results also indicated that the exposure of group C injuries to AMW cause the acceleration of healing mechanism of the infected wounds and hair started to appear in injured areas, 3 weeks post infection, as compared with groups A and B. It may be concluded that the use of 1.0 MHz EMW as a physiotherapy for improving skin activity is a promising new technique.

### Biography

Fadel M Ali has done PhD in Physics at Hungarian Academy of Science, Budapest in 1961. He is Prof. Emeritus of radiation and Medical Biophysics, Faculty of Science, Cairo University, Egypt. He is the president of the Egyptian Biophysical Society, member of EBSA (European Biophysical society Association). He serves as a Chief Editor of the Egyptian Journal of Biophysics. He has published 201 papers in international journals. Member in editorial board of the journals; International journal of dental surgery and medical applications, physics of alive, and Chartered Radiation Protection Professional SRP, UK.

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