Abstracts

Rate Effects in Isolated Turtle Hearts Induced by Microwave Irradiation

C.E. Tinney, J.L. Lords and C.H. Durney. "Rate Effects in Isolated Turtle Hearts Induced by Microwave Irradiation." 1976 Transactions on Microwave Theory and Techniques 24.1 (Jan. 1976 [T-MTT]): 18-24.

Microwave irradiation at 960-MHz CW of isolated poikilothermic hearts in Ringer's solution causes bradycardia. Tachycardia is usually produced by generalized heating, suggesting the possibility of a different mechanism in this case. The effect occurs only over a narrow power range of approximately 2-10 mW/g absorbed by the heart. It is hypothesized that microwave radiation causes neurotransmitter release either by excitation of the nerve remnants in the heart, or by some other mechanism, producing bradycardia over a restricted range of power absorption. Drugs which can change the response of the heart to transmitter substances have been used, and the results support a neurotransmitter release hypothesis. A generalized heating effect, causing tachycardia, is predominant at higher levels of absorbed power.

❑ Return to main document.