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Aqueous and salt solutions of quinine of low concentrations: Self-organization, physicochemical properties and actions on the electrical characteristics of neurons

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Abstract

© 2014, Pleiades Publishing, Inc. Self-organization, the physicochemical properties of aqueous and salt solutions of quinine and the effects of salt quinine solutions in a wide range of concentrations (1 · 10−22−1 · 10−3 M) on the electrical characteristics of the edible snail's identified neurons were studied. Similar non-monotonic concentration dependencies of physicochemical properties of aqueous and salt quinine solutions at low concentrations are obtained. This allows of predicting the occurrence of biological effects at low concentrations of quinine solutions. Intrinsic (within 5% of the interval) changes in membrane potential, the amplitude and duration of the neuron action potential under the influence of quinine salt solutions at concentrations of quinine of 1 · 10−20, 1 · 10−18, 1 · 10−10 M are found. For these concentrations the extreme values of specific conductivity and pH are shown.

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Keywords

identified neurons, membrane potential, physicochemical properties, self-organization, solutions, threshold potential