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Study on zinc salicylate wound healing activity

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Abstract

Acute and chronic cutaneous wounds caused by traumas, surgical interventions and a range of chronic diseases such as, for example, diabetes mellitus or chronic venous insufficiency, are widely distributed among the population all over the world, first of all among the aged patients. The treatment of acute and chronic cutaneous wounds is a current challenge for the medicine, which is not completely solved for the present day. Medicines with regenerative activity used currently have certain disadvantages, of which can be mentioned particularly the difficulties in technology and standardization of the drugs of biological origin. A range of zinc compounds (e.g., oxide, sulfate etc.) are used for a long time for the treatment of various skin diseases. Nevertheless for the present time there are some important aspects of the biological activity of zinc coordination compounds which are still not studied in detail enough, particularly the regenerative activity. In this study we investigated the regenerative activity of zinc salicylate. Zinc salicylate was prepared by reaction of an excess of zinc carbonate with salicylic acid in ethanol. Zinc salicylate activity *in vitro* on metabolic, proliferative and migration state of fibroblasts was investigated in cell culture. It was shown that zinc salicylate stimulates metabolic activity, increases migration state of fibroblasts, contribute to proteins adaptation to damage. Wound healing action of zinc salicylate as an active principal of a polyethyleneglycol-based ointment was studied on the model of linear wound in rats. It was shown high regenerative activity of zinc salicylate vs a standard medicine ("Levomecol").

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