

ABSTRACT

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Title of diploma thesis: Study of the migration of cells affected by sulfur mustard

Sulfur mustard is a highly toxic chemical agent. From the point of view of toxicology, it is classified as a blistering agent, and its use is prohibited by the Chemical Weapons Convention. However, this substance has been used in several armed conflicts and terrorist attacks in the past. When it comes in contact with human skin, it produces typical blisters filled with a yellowish exudate. Sulfur mustard has cytotoxic and cytostatic effects on living tissue, and therefore the treatment of such lesions is extremely difficult.

This thesis is focused on the *in vitro* evaluation of the possibility of employing growth factors IGF, KGF, and EGF in the wounding process of sulfur mustard-damaged tissue. The effect of these growth factors on collective migration of HaCaT keratinocytes and HDFa skin fibroblasts under *in vitro* conditions was evaluated using the “scratch wound healing assay” method.

Our results show that the toxic effects of sulfur mustard inhibit cell migration to such an extent that the positive effect of the growth factors tested during the 24-hour interval was only very slight, leading to statistically insignificant results. In some cases, inhibition of cell migration also occurred.