

Abstract

The research work presents the results of the study on the impact of biocidal finishing on ticks of the *Ixodes ricinus* species, which constituted the main object of the research's interest. The dissertation was mainly focused and implemented in terms of the existing problem in the State Forests Institution, concerning numerous attacks of parasites harmful to the forest service and working dogs. The proposed biocidal material was obtained by using the technology of surfacing agent based on permethrin. Basic research allowed to analyze the biocidal fabric in the aspect of the most important functional values in terms of its intended use.

The main purpose of the work was to construct protective biocidal clothing tolerated by man and dog, fulfilling the function of health protection and stabilizing the work of users. The second purpose of the work was to conduct multi-track tests carried out in a laboratory involving three species of animals (*Ixodes ricinus*, *Musca domestica*, *Harmonia axyridis*) and in the field in the forest districts of Bytów and Bielsko. The effect was a reliable and authoritative assessment of the effectiveness and durability of protective clothing.

The final effect of the dissertation is a new product that repels dangerous parasites such as ticks and others, in the form of protective barrier clothing. One of the priority priorities of this dissertation were actions aimed at maximum reduction or complete elimination of periodically occurring negative reactions caused by commonly used protective agents in liquid form. The developed remedy eliminated the existing problem of recurrent complications associated with the use of poisonous, not rarely toxic substances in the composition of repellents.

The deterrent effectiveness of the designed shirt was rated at 92%, while the dog's vests at 96%. The protective measure developed has contributed to a direct increase in occupational safety.

Conducting field tests enabled the use and checking of the final product in practice. Its high efficiency and high approval from potential recipients, strongly justifies the proposal to use, developed protective clothing as a uniform for employees at risk, and also encourages its implementation into production.

Designed protective biocidal dog vest expands the range of dog protection products currently available. Completely different from all existing protective measures, and the nature of the biocidal vest qualifies it as innovative.