THE NEW COMBINED INSECTOACARICIDE 
WITH REPELLENT ACTION

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A systematic treatment of animal by insecticides and repellents is one of the most accessible and economically viable measures against mosquitoes to prevent the loss of meat and milk production.

Synthetic pyrethroids such as permethrin, cypermethrin, fenvalerat and deltamethrin were especially effective for this when using them in very small doses.

Thus, the purpose of the experiment was to determine chemical stability of the active ingredients of the new preparation in the finished dosage form.

The study of pharmaceutical compatibility and stability of ingredients in the preparation Ektosan-Plus was conducted by using biophysical research methods of mass spectrometry in the laboratory of disinfectants and antiseptics of IE NAAS.

The preparation Ektosan-Plus includes such main active substances as alphacypermethrin C_{22}H_{19}Cl_{2}NO_{3} (M = 416.3 a.o.m.), piperonil butoxide C_{19}H_{30}O_{5} (M = 338.4 a.o.m.) and geraniol C_{10}H_{18}O (M = a.o.m. 154) with the addition of the composition of essential oils of lemon and rose to the agent of complex organic solvents.

In the mass spectrum of the preparation Ektosan-Plus after 18 months of storage typical ion peaks of the main ingredients were identified. So in "+" ions the indicator m/z 177.3 belonged to KMI [M+Na]+ of geraniol, and the value of m/z 338.5 belonged to molecular ion [M]+ of piperonil butoxide.

In "-" ions the indicator m/z 207.5 belonged to doubly charged molecular ion of alphacypermethrin [M+2e]-, and m/z 415.1 belonged to KMI of alphacypermethrin [M-H+] while the value of m/z 451.2 belonged to quasi-molecular ion of alphacypermethrin ion [M+Cl]-

In the mass spectrum of a model mixture of main ingredients of Ektosan-Plus "alphacypermethrin + piperonil butoxide + geraniol" in two months after the mixing in propylene glycol typical ion peaks of the main ingredients were detected.
Thus, all three main active ingredients such as alphacypermethrin, piperonil butoxide and geraniol within 18 months of monitoring in the preparation Ektosan-Plus are stored, and mass spectra of the model mixture of ingredients confirm their pharmaceutical compatibility in the solution.

This suggests that all the main ingredients such as alphamethrin, piperonil butoxide and geraniol are pharmaceutically compatible.

Shelf life of Ektosan-Plus when stored in a room with natural or artificial lighting and temperature fluctuations between + 1 °C to +27 °C can be 2 years.

**Keywords:** MASS-SPECTROMETRY, EKTOSAN PLUS, MONITORING, BAI.