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The nanofibers based theranostic applications in controlling Varoa destructor

Bruno Sopko[1], Jan Hubert[1], Jitka Stara[1], Evzen Amler[2]
[1]Czech Agrifood Research Center, Czech Republic
[2]Student Science,LTD, Czech Republic

Nanofiber based carriers are the state of art instrument used in medicine for theranostic (therapeutic and diagnostics) applications, like controlled and continuous delivery of the applied pharmaceuticals, leading to its decreased level, which we applied to controlling the Varroa destructor level in apiaries. The applied τ-fluvalinate in the PVP nanofiber based carrier led to the significant decrease of used active substance to 20 % with comparable result. The effectiveness has been checked using crossover check with Gabon-flum (flumetrine) and Formidol (formic acid) registered veterinary medicines as control.

The diagnostic part of the above mentioned theranostic was fulfilled by developing novel flask test, based on the deployment of the PVP based nanofiber carrier with logarithmic scale concentrations of the active substances – in our case τ-fluvalinate and amitraz. The determined LC50 and LC90 (0.000093 mg and 0,138 mg for amitraz, 0.0132 and 15.1 for τ-fluvalinate), results were comparable with the resistance reported in the literature