Proceedings of the Seventh International Conference on Urban Pests
William H Robinson and Ana Eugênia de Carvalho Campos (editors) 2011
Printed by Instituto Biológico, São Paulo, SP. Brazil.

AQUEOUS CONCENTRATES - EFFECTIVE AND THE MOST SAFE PREPARATIVE FORM OF INSECTICIDES

[1]MARINA N. KOSTINA, [1]MARINA M. MAL'TSEVA, AND [2]MIKHAIL M. AKULIN

[1]Federal State Institution of Science, Scientific Research Institute for Disinfectology of Rospotrebnadzor (SRID). Moscow, Russian Federation
[1]Closed Joint Stock Company «Rosagroservice», Russian Federation

The preparative form of concentrated emulsion continues to enjoy the greatest demand among professionals conducting insecticide treatments. In comparison with a lot of concentrates in organic solvents, aqueous concentrates, which are not so widely represented in the market of insecticides, are similarly effective against insects, but are safer for humans. The results of study of three preparations containing different active substances (AS) may be submitted: pyrethroid lambda-cyhalothrin ("Abzats"- 5% AS), organophosphorus compound (OPC) - fenthion ("Dobrochim OPC" - 20% AS), and neonikotinoid acetamiprid ("Aspid 20% w.s.p." - water soluble powder). These preparations have been developed jointly by specialists of SRID and "Dobrochim" Ltd.: there were carefully selected components ensuring the stability and preventing separation of emulsion, stabilizers, flavoring agents (particularly in the case of OPC), and the synergist-adhesive-thickener, which has a double effect of 2-3 times increasing of compound activity and reducing the degree of its toxicity to humans, was introduced into composition. As a result, the preparation with lambda-cyhalothrin had 100% effect at concentrations 0.025-0.0125-0.0062% (depending on the species of arthropods) instead of 0.05% in the case of concentrates in organic solvents. The high effectiveness was ascertained against larvae of flies and mosquitoes (0.00005%), and also against rat mites (0.0125%) and wasps (0.025%). The preparation with fenthion had a higher target efficiency (0.2-0.1% of AS) than concentrates in organic solvents (0.5% of AS). The highest effect was obtained against bedbugs (0,1%), rat mites (0.1%), as well as larvae of flies (0.2%) and mosquitoes (0.005%) when processing their breeding places. Insecto-acaricide preparation with acetamiprid had a high target efficiency at concentrations 0,1-0,05% of AS, but the highest effect was obtained at the intestinal influence, as well as when processing of mosquito's larvae breeding places in urban ponds. Toxicological evaluations of the studied preparations testified that working emulsions of aqueous concentrates in potentially dangerous ways of entering into an organism (oral, dermal, inhalation) were less dangerous by the parameters of toxicity than those in organic solvents. According to the limiting index of toxicity for insecticides (zone of subacute biocidal effect), the fumes of working emulsions of aqueous concentrates in the recommended conditions of application belong to little dangerous ones, with no skin-resorptive and sensitizing properties. Taking into account the characteristics of the studied aqueous concentrates they were registered and are widely used in a wide sphere: in the objects of municipal and domestic purposes (hotels, hostels), in catering objects, in therapeutic and prophylactic institutions (for carrying out of final disinfection), in child institutions (excepting bedrooms, dining and playing rooms), as well as in breeding places of flies and mosquitoes outdoors.

Key Words Efficiency, formulation, pests, control