

ABSTRACT: Optimization of rheological properties of the decontaminating hydrofobic microemulsions

Behavkova Vendula

Aim: To prepare stable hydrofobic microemulsions which would be able to decontaminate chemical warfare agents.

Methods: Testing and selecting individual components which together create a stable microemulsion. As a hydrophobic phase were tested tetrachloroethylene, toluene, decahydronaphthalene and heptane, as surfactants cationactive, anionactive and nonionic compounds and as cosurfactants butanol and hexanol. As a hydrophilic phase was at first tested water and then in stable microemulsions water was changed by alkaline solution of H_2O_2 .

Results: With water was prepared probably 800 emulsions. For testing with alkaline solution of H_2O_2 was chosen 24 best microemulsions according to their stability, optical brightness and amount of hydrophilic phase. With 0,1M alkaline solution of H_2O_2 was prepared 20 microemulsions and with the 1M concentration of the same solution was prepared 14 microemulsions. These microemulsions can represented a base of the decontaminating compounds in experiments *in vivo*. The attention was paid mainly to cationic surfactants, here was expected accelerating of the hydrolitic reaction because of micromedium at micellar surface, which is able to concentrate nucleophilic compounds, that means the alkaline solution of H_2O_2 .

Conclusions: 1. It was found about 30 mixtures, which create stable microemulsions. 2. Viscosity of the system can be regulated by amount of the hydrophilic phase. 3. Stability of the microemulsion decrease with increasing ion power of the hydrophilic phase. 4. Results proved that individual parameters are tied one another, consequently it there was no success to determinate basic rules for preparing stable microemulsions.