

F.I.P. '91 Abstracts

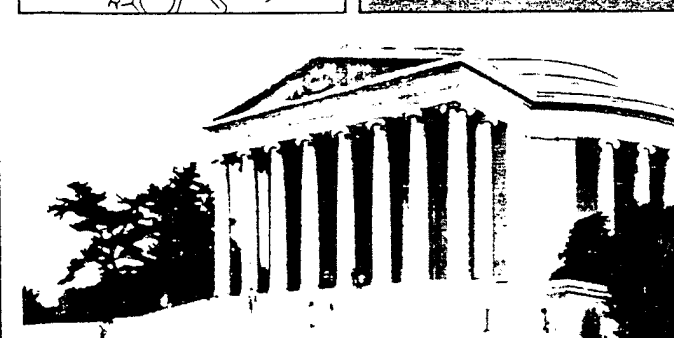
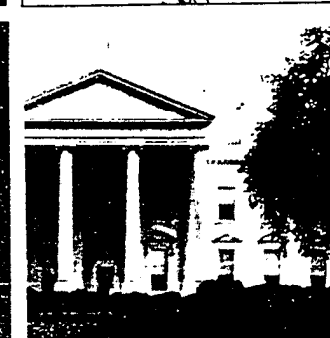
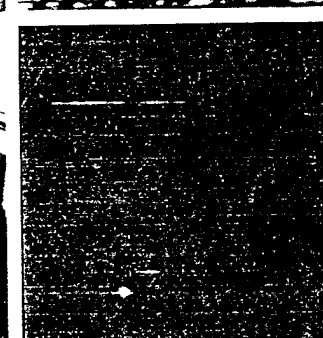
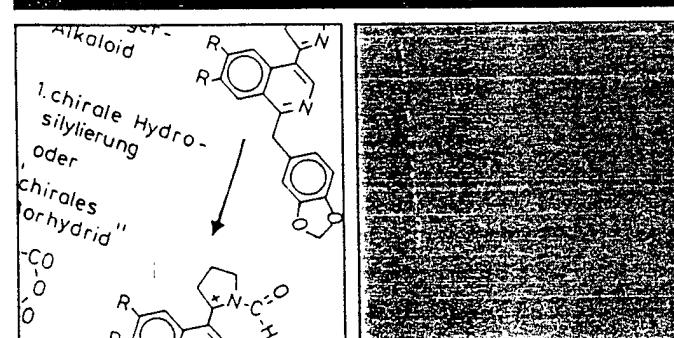
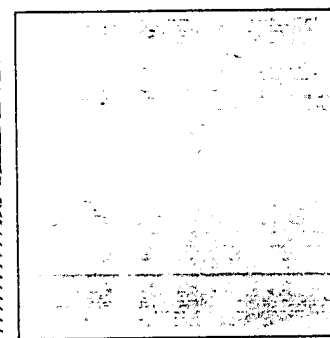
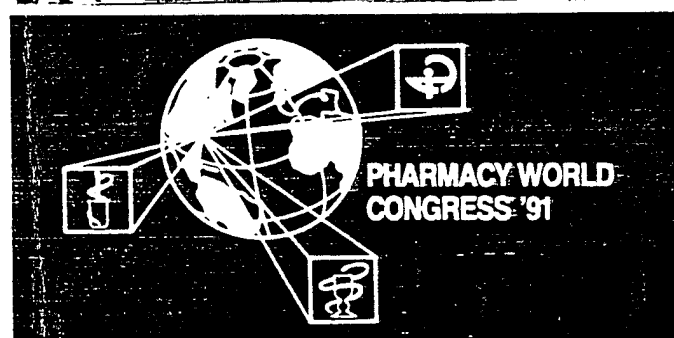
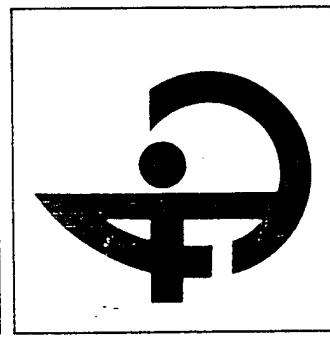
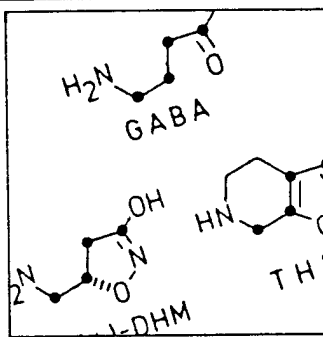
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PHYSICOCHEMICAL BASIS FOR EVALUATION OF DISINFECTANT SOLUTIONS

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The aim of this investigation was to develop a new empirical and statistically adequate equation to express the dependence of various physicochemical properties of disinfection solutions on bactericidal activity. Using the previously developed disinfectant activity coefficient of solution (DACS) (Panzova and Bogdanov, Int.J.Pharm. 65,1990, 35-41), evaluation of disinfectants model is proposed. The disinfectant activity coefficient of solution (DACS) was expressed as a function of four characteristic terms which represent the separate contribution to the activity due to fluidity, surface tension, chemical properties and osmolality of the solutions. For short periods of exposure to disinfection solution, the fluidity and surface tension terms are evidently important in the reaction with microorganisms. Both of these terms allow one to determine the passive transport of substance in the solution, across a concentration, electrical and osmotic gradient. In the case of the active transport of substance in the solution, the terms denoting the chemical properties and osmolality are applicable. Thirteen antiseptic aqueous solutions (boric acid, chlorhexidine gluconate, chlorhexidine glukonate with cetrimide, chloroxylenol, clorofen, eosine, hydrogen peroxide, phenylmercuric borate, povidone-iodine, thiomersal, tosylchloramide sodium) intended for the disinfection of living tissues were compared in regard to their microbiocidal effectiveness toward *Staphylococcus aureus* and DACS index. The DACS index, results in good correlation with the germicidal activity at different disinfectants. It is hoped that this general approach will find further application in design of disinfection solutions.

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