

Optimal conventional galenics: microemulsion as a paradigm

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Microemulsions are complex systems of oil, water and emulsifiers (surfactant and cosurfactant). Excellent solubility potential for lipophilic and hydrophilic substances, thermodynamic stability and ease of manufacture cause the great attraction of microemulsions as dermal drug delivery system. Yet, the large amount of surfactant/cosurfactant may result/yield in skin irritation. Therefore, optimization of the composition of the microemulsion is often required. Since microemulsions are usually only formed in narrow specific concentration ranges of the ingredients, investigation of the suitable composition is a demanding process. So far, compositions of microemulsions are determined by the time- and cost-consuming titration method (drop method) and represented in pseudoternary diagrams.

This presentation will introduce a new, time and material-saving method called “Phase Diagram by Micro Plate Dilution” (PDMPD) for creating pseudoternary phase diagrams for microemulsions. The novel PDMPD method is based on the preparation of dilution series of the individual components in microplates and the examination thereof with a computer assisted technique to create the pseudoternary diagram. Consequently, the concentration of the components can be chosen more accurate in order to reduce the surfactant amounts and by this local dermal irritation.

