

Mackay, D. et al. (2014). "QSARs for aquatic toxicity: Celebrating, extending and displaying the pioneering contributions of Ferguson, Konemann and Veith." *SAR QSAR Environ Res* 25(5):343–355.

Significant advances were made in the development of QSARs relating molecular structure to aquatic toxicity by three studies over 30 years ago by Ferguson in 1939, Konemann in 1981, and Veith and colleagues in 1983. We revisit the original concepts and data from these studies and review these contributions from the bases of current perspectives on the hypothesized mechanism of baseline narcotic toxicity and the underlying thermodynamic and kinetic aspects. The relationships between LC50, octanol–water partition coefficient, aqueous solubility, chemical activity and chemical volume fraction in lipid phases are outlined including kinetic influences on measured toxicities. These relationships provide a compelling and plausible explanation of the success of these and other QSARs for aquatic toxicity. Suggestions are made for further advances in these QSARs to improve assessments of toxicity by baseline narcotic toxicity and selective modes of action, especially using emerging quantum chemical computational capabilities.

Manargadoo-Catin, M. et al. (2016). "Hemolysis by surfactants—A review." *Adv Colloid Interface Sci* 228:1–16.

An overview of the use of surfactants for erythrocyte lysis and their cell membrane action mechanisms is given. Erythrocyte membrane characteristics and its association with the cell cytoskeleton are presented in order to complete understanding of the erythrocyte membrane distortion. Cell homeostasis disturbances caused by surfactants might induce changes starting from shape modification to cell lysis. Two main mechanisms are hypothesized in literature which are osmotic lysis and lysis by solubilization even if the boundary between them is not clearly defined. Another specific mechanism based on the formation of membrane pores is suggested in the particular case of saponins. The lytic potency of a surfactant is related to its affinity for the membrane and the modification of the lipid membrane curvature. This is to be related to the surfactant shape defined by its hydrophobic and hydrophilic moieties but also by experimental conditions. As a consequence, prediction of the hemolytic potency of a given surfactant is challenging. Several studies are focused on the relation between surfactant erythrolytic potency and their physicochemical parameters such as the critical micellar concentration (CMC), the hydrophile–lipophile balance (HLB), the surfactant membrane/water partition coefficient (K) or the packing parameter (P). The CMC is one of the most important factors considered even if a lytic activity cut-off effect points out that the only consideration of CMC not enough predictive. The relation  $K.CMC$  must be considered in addition to the CMC to predict the surfactant lytic capacity within the same family of nonionic surfactant. Those surfactant structure/lytic activity studies demonstrate the requirement to take into account a combination of physicochemical parameters to understand and foresee surfactant lytic potency.

Mansour, F. R. and N. D. Danielson (2017). "Solidification of floating organic droplet in dispersive liquid–liquid microextraction as a green analytical tool." *Talanta* 170:22–35.

Dispersive liquid–liquid microextraction (DLLME) is a special type of microextraction in which a mixture of two solvents (an extracting solvent and a disperser) is injected into the sample. The extraction solvent is then dispersed as fine droplets in the cloudy sample through manual or mechanical agitation. Hence, the sample