MODELING MONOLAYER FILMS AT AIR-WATER INTERFACE

Jacek Korchowiec,1 Klaudia Kwiecińska,1 Anna Stachowicz-Kuśnierz,1

Maria Sagan,2 Beata Korchowiec2

1 K. Gumiński Department of Theoretical Chemistry

2 Department of Physical Chemistry and Electrochemistry

Faculty of Chemistry Jagiellonian University, Gronostajowa 2, 30-387 Krakow, Poland

The behavior and properties of different molecules in monomolecular films formed at the air-water interface were studied using surface pressure measurement, polarization-modulation infrared reflection-absorption spectroscopy as well as computational modeling. A few monolayer systems were taken into account. Among them were models of lung surfactants and models of Gram-negative/Gram-positive bacteria membranes. Here, we will show interaction of benzo[a]pyrene [1] and dioxin [2] molecules with lung surfactant models, stability of gemini amphiphile pseudopeptides (GAPs) at different pH [3], antimicrobial behavior of calixarene derivatives [4], GAPS [5] and selected saponins [6]. The results obtained gave an insight into the inter- and intramolecular interactions. It was demonstrated that the presence of different molecules in monolayers is manifested by reduction of monolayer hydration, chain ordering, fluidity and phase behavior. Such changes in turn are responsible for different lung disfunctions or antibacterial activity of calixarenes, GAPS and saponins.

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