

Amphotericin B Interactions with a DOPC Monolayer.
Electrochemical Investigations

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A model lipid membrane consisting of a monolayer of dioleoyl phosphatidylcholine (DOPC) adsorbed onto a Hg electrode has been used to study the interaction between the lipid and different formulations of Amphotericin B (Fungizone (FZ), Heated Fungizone (HFZ), and Abelcet). The lipid organizational order was measured by electrochemical methods (capacitance and metal ion (Tl⁺) reduction, characterizing the change in lipid order due to interaction with the drug. The mean size and number density of pores in the monolayer were estimated by fitting the reduction current transients to a random array of microelectrodes model. This method was shown to be sensitive for investigation of the interaction of drugs with a pure lipid monolayer. Abelcet was found to have a smaller disruptive effect on lipid order than FZ and HFZ. The formulation used to solubilize the Amphotericin B was also studied. Sodium deoxycholate used as a solubilizer in FZ displayed significant influence on lipid order similar to that observed for Abelcet. The lipid complex that is used in Abelcet did not significantly influence the DOPC monolayer order. The lipid present in the Abelcet may have an annealing or healing effect that buffers the disruption possible due to Amphotericin B.