OBJECTIVE OF THE PRESENT WORK
2. Objective of the present work

The three drugs - cisplatin, methotrexate and vincristine have well documented neurotoxic side effects. However, the major cause of these side effects has still not been conclusively found. Though the three drugs possess neurotoxic side effects, the extent of damage caused to the nerve varies. It would be of great interest to know if the neurotoxicities of these drugs are due to a common site of action on the nerve. If so, several questions arise regarding their mechanism of action and whether the same mechanism is responsible for the neurotoxicity of these three drugs. The answers to these questions might be the key in understanding the undesired neurotoxicities of these drugs. Once the cause and mechanism of neurotoxicity are known, possible methods to overcome these effects could be devised so that these drugs could be more widely used in chemotherapy regimens.

Though many investigations have been carried out using *in vitro* and *in vivo* models to determine the mechanism of toxicity of these drugs as discussed in the previous chapter, studies on the lipid bilayer-drug interactions are scanty. It has already been well established that drug-lipid interactions are important in determining the mechanism of action of the drug on the cell. Hence, the present study utilizes a planar lipid model membrane to assess the extent of interaction of the selected anti-cancer drugs with the lipid bilayer. The results from this study would be helpful to determine the extent and nature of interaction of the selected drug with the lipid bilayer and also to find out if any correlation exists between the observed clinical neurotoxic manifestations with the proposed mechanism of action of the drug.