

## Preparation and characterization of catanionic vesicles composed of cetyltrimethylammonium bromide, sodium lauryl sulfate and cholesterol

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**Background and Aims:** Catanionic vesicles can be formed from cationic and anionic surfactant aqueous mixtures, in which the counter-ions are present and have high potential in drug delivery applications. In this research the preparation and characterization of model compound, rhodamin B-, containing vesicles have been evaluated.

**Methods:** Different molar percents of cetyltrimethylammonium bromide (CTAB) and sodium lauryl sulfate (SLS) was dissolved in deionized water separately and mixed with magnet stirrer to achieve a milky suspension. The suspension was filtered and the resultant catanionic amphiphiles were used for vesicles preparation in the presence of cholesterol. Physical stability, mean volume diameter, morphology and DSC thermograms of freeze-dried vesicles was studied.

**Results:** The equimolar mixture of CTAB ad SLS formed stable catanionic vesicles with mean volume diameter about 10  $\mu\text{m}$  in the presence of 30 mole% cholesterol. Vesicles were often round-shape, thick-walled and separated.

**Conclusions:** In comparison with liposomes, catanionic vesicles possess more attractive properties such as stability and lower cost, and these characteristics may make them suitable as a non-viral vehicle and for other biomedical applications such as vaccine adjuvants or gene delivery.

**Keywords:** Cetyltrimethylammonium bromide; Sodium lauryl sulfate; Vesicle preparation