CHAPTER V

CONCLUSIONS

Span 40, Span 60 and Span 85 could self-assembly to vesicles. So they were used to prepare for retinyl palmitate niosomes by hand-shaking method providing a lot of multilamellar vesicles (MLVs). This method performed the great variation size of vesicles. The mean size was approximately 10 μm. It was determined by Laser diffraction. The morphology of retinyl palmitate niosomes was shown by an optical microscope.The vesicles was spherical and showed apparently many lamellae. Also, scanning electron microscope revealed the size and shape of prepared retinyl palmitate niosomes were spherical.

The amount of retinyl palmitate loaded in the vesicle significantly increased provided that more retinyl palmitate was added into niosome preparation. However the amount of retinyl palmitate intercalated completely within the lipid bilayer was 5 mg. Niosomes prepared by Span 85: cholesterol: Solulan C-24 could entrap retinyl palmitate less than the niosomes prepared by Span 40 and Span 60

The cholesterol content influenced on retinyl palmitate entrapment. The increment of cholesterol content lead to the reduction of entrapped retinyl palmitate in

the niosomes prepared by both Span 40: cholesterol: Solulan C-24 and Span 60: cholesterol: Solulan C-24. However the higher amount of cholesterol content resulted in the increasing of entrapped retinyl palmitate for niosomes prepared by Span 85: cholesterol: Solulan C-24.

The permeation of retinyl palmitate niosomes was studied by using of cobra skin as a model membrane in Franz diffusion cell. Niosomes prepared by Span 40: cholesterol: Solulan C-24 (45:45:10) showed the highest penetration enhancment activity. According to the significantly different in cumulative amount of retinyl palmitate and flux when compared with niosomes prepared by Span 85:cholesterol: Solulan C-24.(45:45:10) being the second highest penetration enhancement activity. In case of niosomes prepared by Span 60: cholesterol: Solulan C-24 (45:45:10) they could not show the penetration enhancement activity.