



## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

Adsorbed  $C_{16}TAB$  aggregates on mica below the CMC were used to solubilize TBOS as a template for polymerization and the formation of a silica film. The TBOS concentration strongly affected the structure of the formed surface aggregate on mica in TBOS- $C_{16}TAB$  solution. Fibrous, spherical, and flat sheet-like aggregates were observed as the TBOS concentration was increased. The structure of surface aggregates directly affected the structure of the dried silica film. Reaction times of twenty-four hours or longer were needed to obtain a stable silica film.

At very low concentration of TBOS in  $C_{16}TAB$  aqueous solution, the surface pattern on mica did not change. It might be due to large nominal radius (20-60 nm) of silicon nitride tip. To improve the resolution of image, silicon nitride tip with smaller radius, about 10 nm, should be preferable.

To accommodate the adsolubilization of tetraalkoxysilane, silicone surfactant with very long chain and tetrahexyl orthosilicate should be preferable compared to tetra-*n*-butoxysilane because tetra-*n*-butoxysilane still reacts rapidly with water at high concentration. This way should provide a wider range of tetraalkoxysilane concentration studied.