

### 3. Chapter 3: Objectives

The present work contains two major objectives; the first objective was to develop formulations of Ana<sub>C15:3</sub> to enhance its anti-biofilm and thereby antimicrobial potential. The second objective was designed to enhance anti-photoaging potential of Ana<sub>C15:0</sub> by developing HP- $\beta$ -CD nanosponge.

1. Development of formulations for enhanced antimicrobial activity of Ana<sub>C15:3</sub>

The objective was achieved under two specific aims;

- i. Development of Ana<sub>C15:3</sub>/ HP- $\beta$ -CD inclusion complex with enhanced solubility and antimicrobial activity.
- ii. Development of Chitosan and DNase coated solid lipid nanoparticles encapsulating Ana<sub>C15:3</sub> for improving antimicrobial activity.

2. Evaluation of therapeutic potential of Ana<sub>C15:0</sub> encapsulated HP- $\beta$ -CD nanosponge enriched topical gel against UV-B induced skin photoaging.