

Retinal as NEW NORMAL ANTI-AGING TREND

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Introduction:

Retinal (retinaldehyde) as a derivative of vitamin A is an intermediate form between retinol and retinoic acid (Fig.1). The retinoids including retinal and retinol have significant effects on cell regeneration and anti-wrinkle, but have low stability, high photolysis and rapidly degraded in water. Retinal is non-polar and does not disperse in water well.

Figure 1. Chemical structure of retinoids

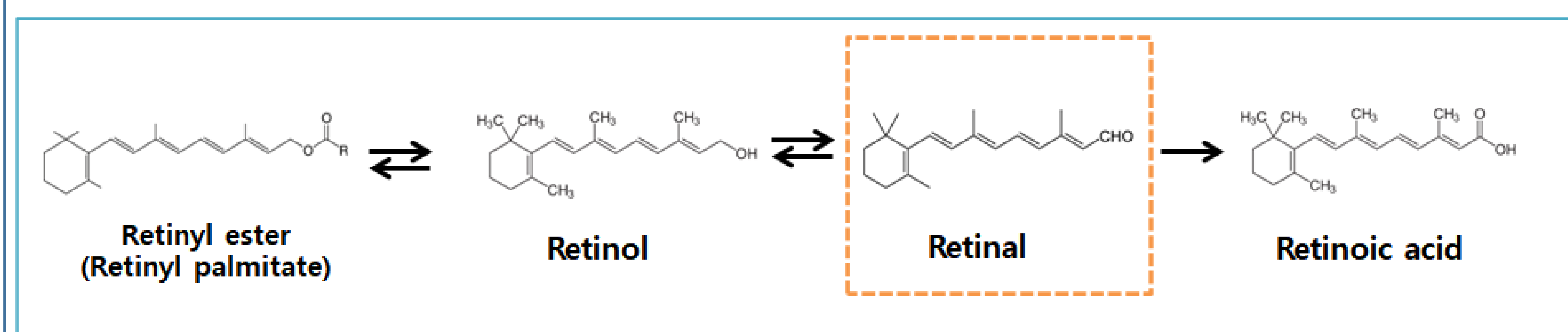
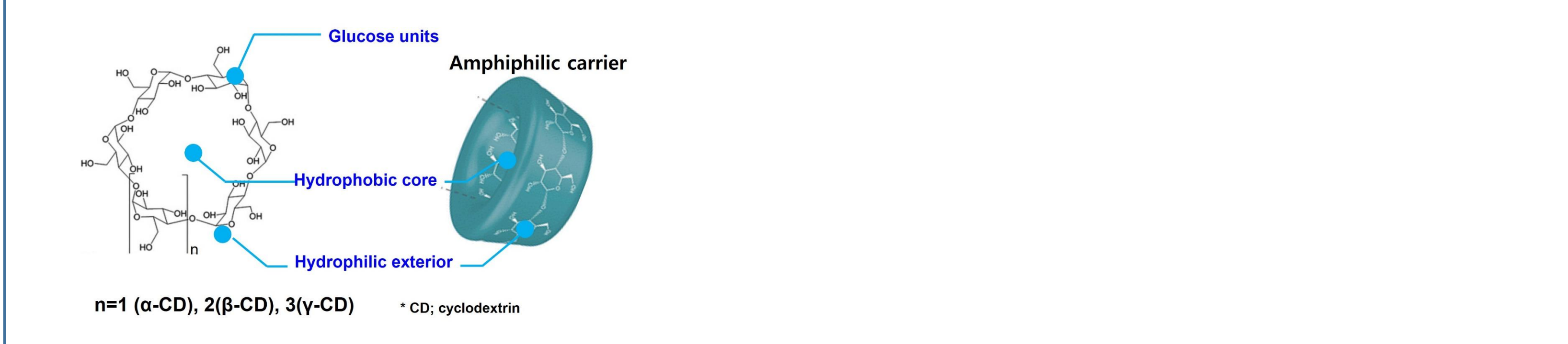


Figure 2. Structure of cyclodextrin



Materials & Methods:

In this study, retinal was stabilized by drug-in-cyclodextrin-in-liposome (DLC) technology as double stabilization system (Fig.3). Retinal was captured with hydroxypropyl β-cyclodextrin (HP-β-CD) for increasing the solubility in water and the complex was incorporating phospholipid-based liposomes. They must include the essential details of the experimental material, utilized methods, equipment, and applied statistical analyses.

Figure 3. Drug-in-cyclodextrin-in-liposome (DLC) technology

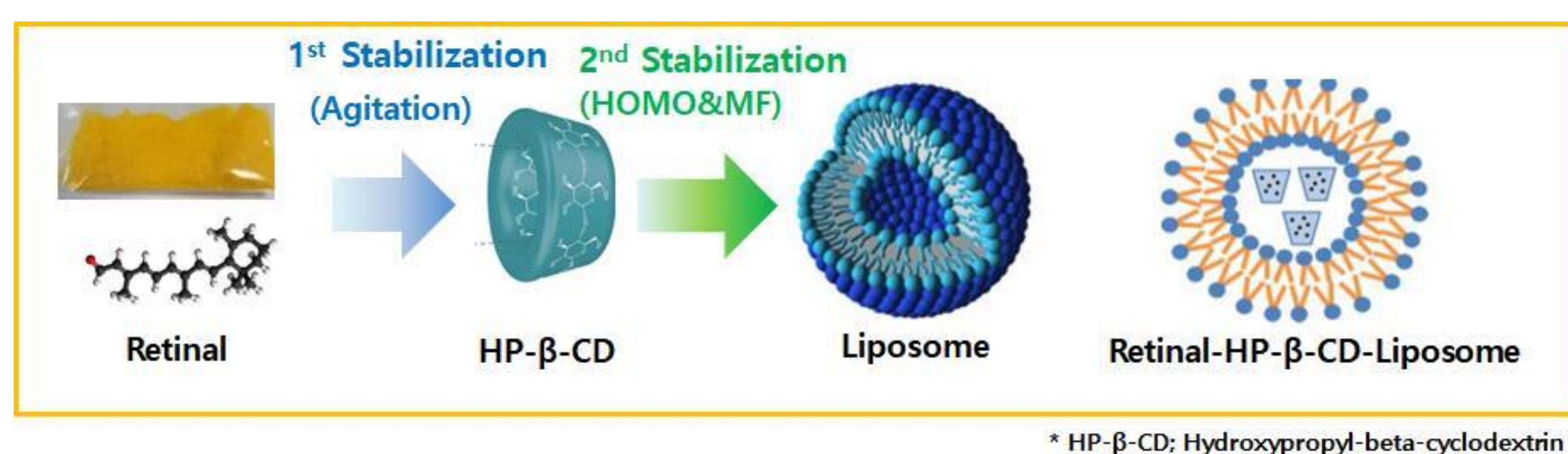
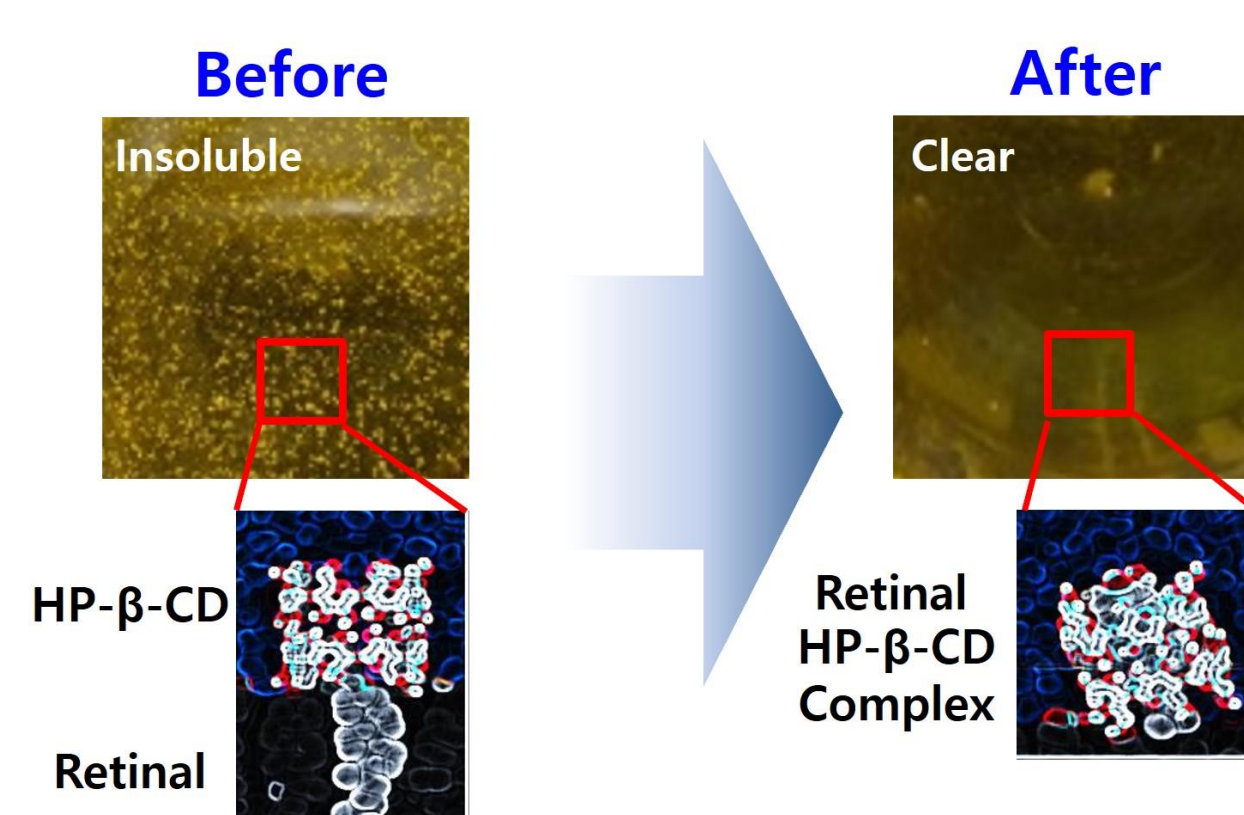


Figure 4. Encapsulation of retinal in HP-β-CD



Results & Discussion:

Figure 5. Scanning electron microscope (SEM) Image.

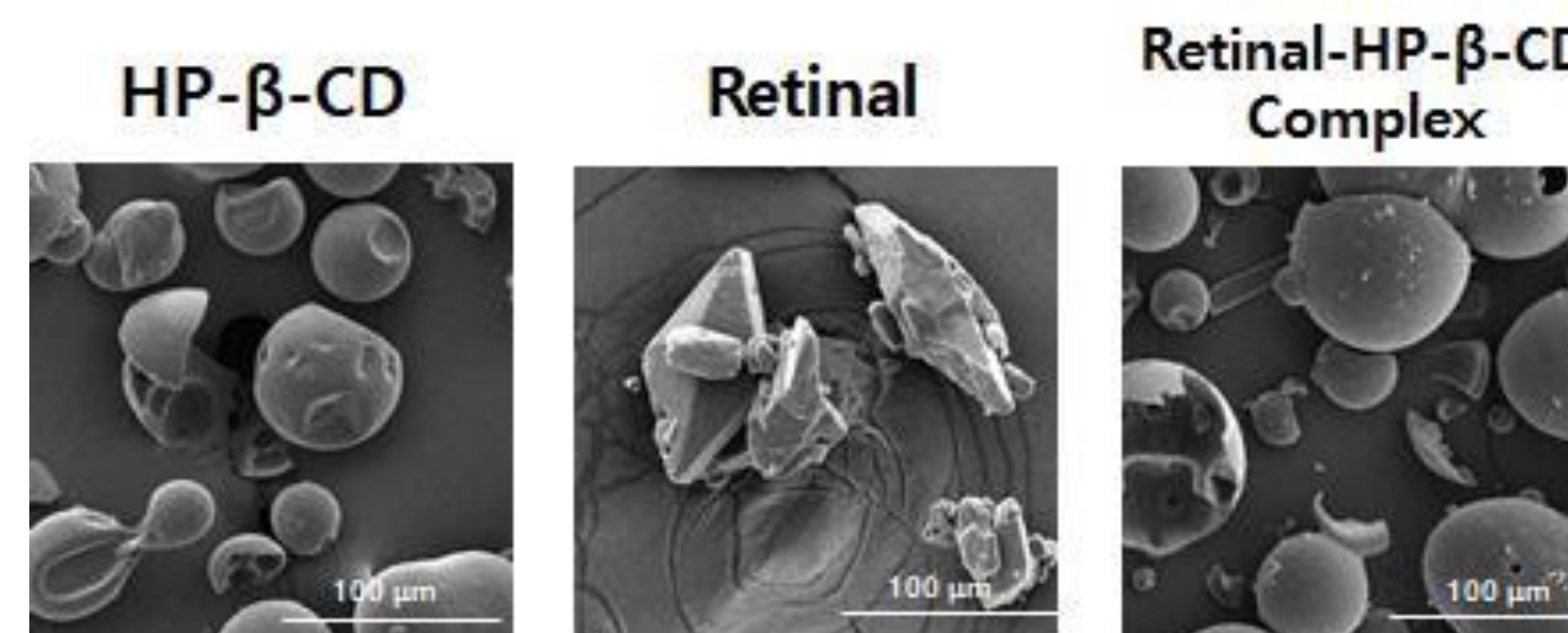


Figure 6. Fourier transform-infrared (FT-IR) spectra

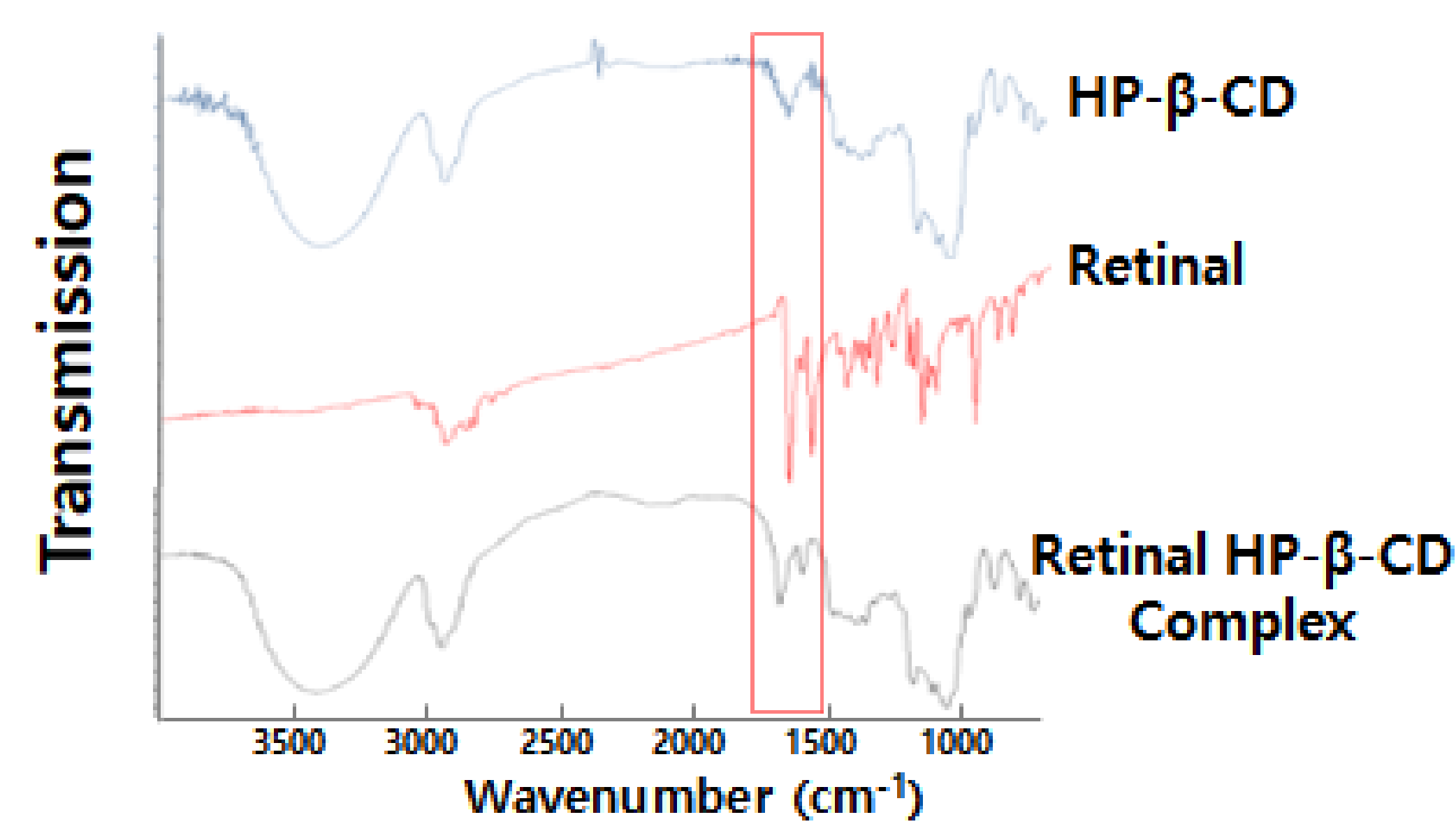


Figure 7. Encapsulation efficiency

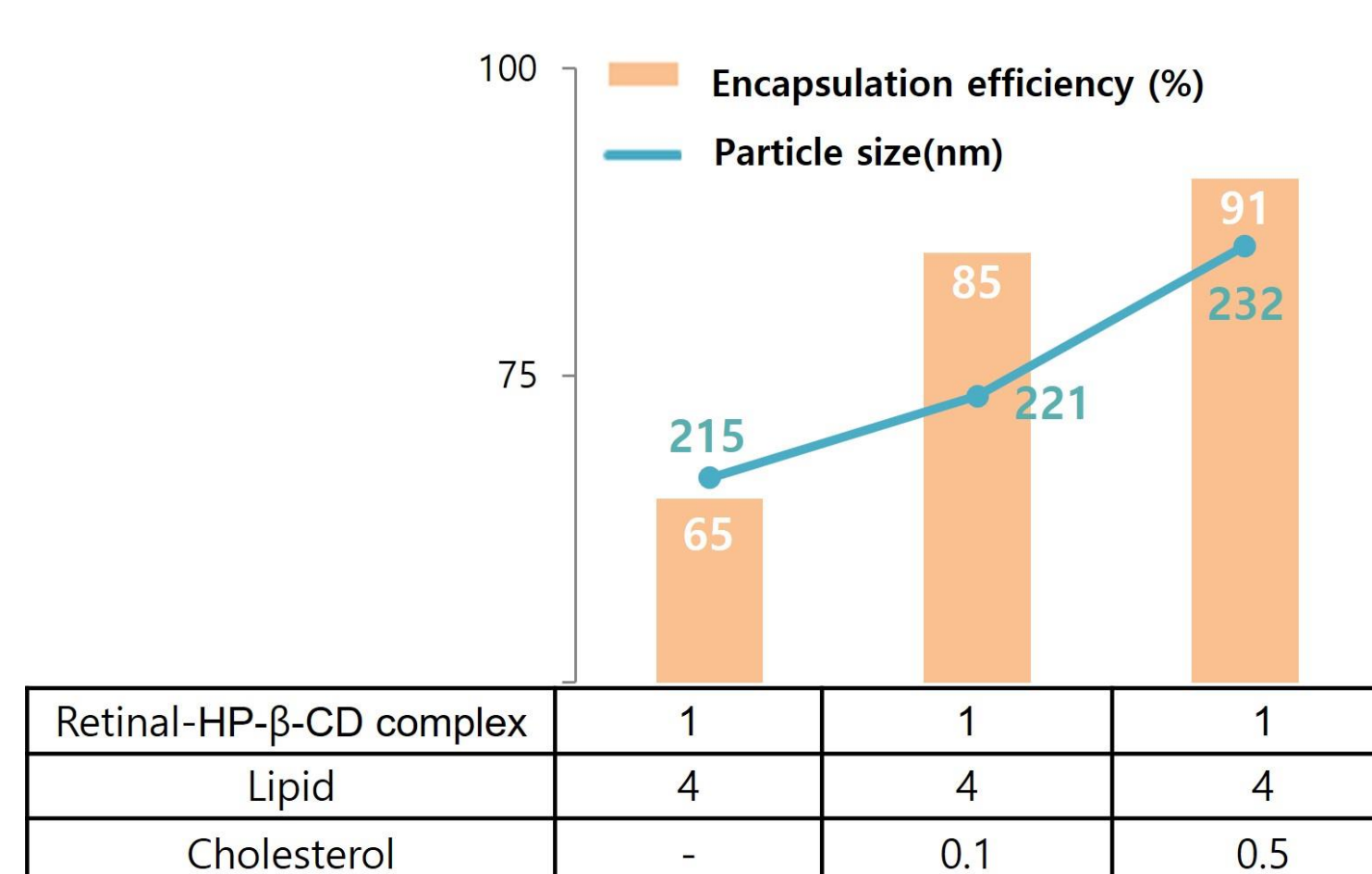
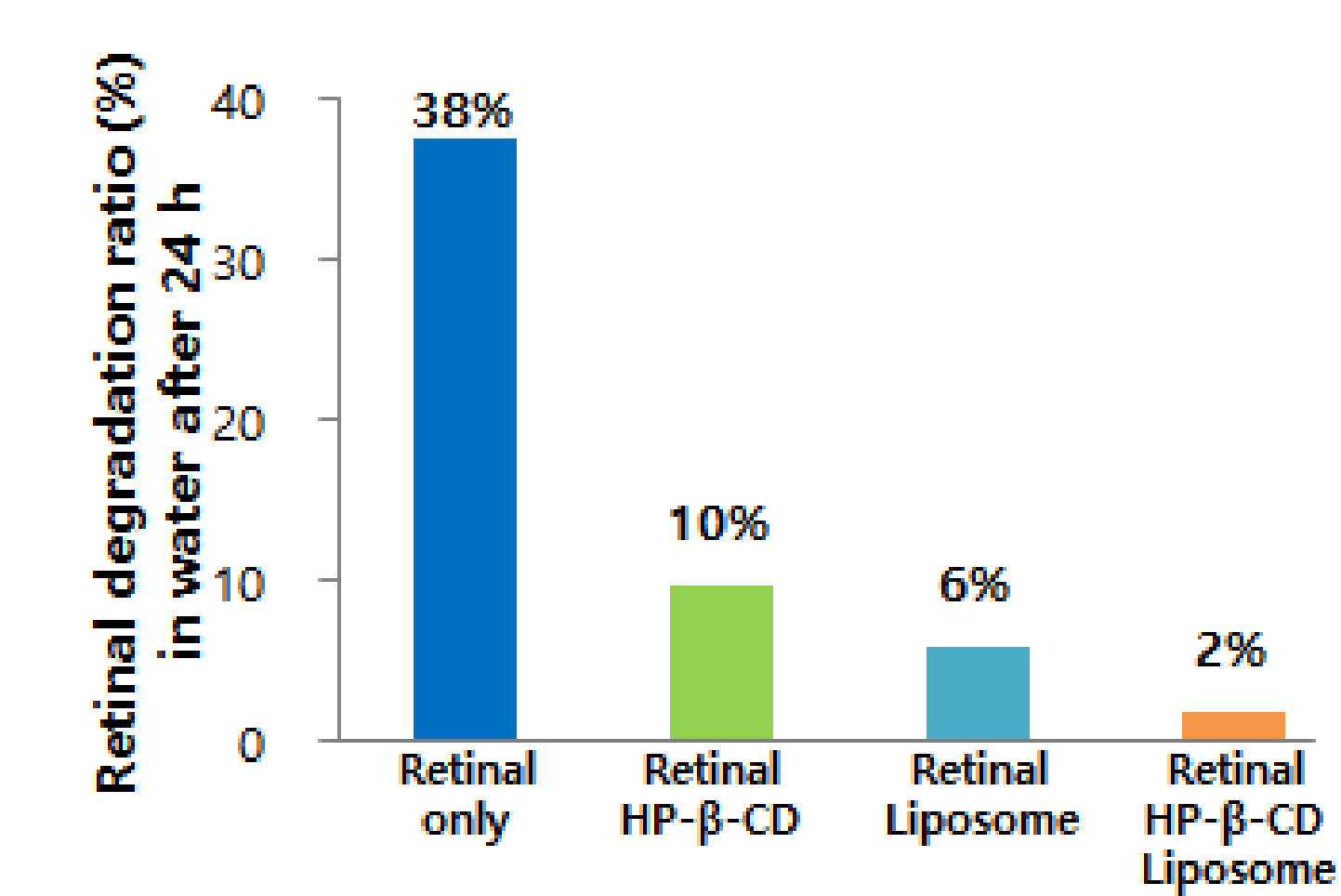


Figure 8. Degradation ratio of retinal



Conclusions:

We proved that double encapsulation of retinal encapsulation and liposome encapsulation using the DCL technology used in this paper was possible, and through this, the stability of retinal could be improved. These research results are expected to be applicable to the fields of pharmaceuticals and cosmetics

References:

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2. Weiss JS, Ellis CN, Headington JT, Tincoff T, Hamilton TA, Voorhees JJ (1988) Topical tretinoin improves photoaged skin: A double-blind vehicle-controlled study. *JAMA* 259:527–532.
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