

## Sizing $\alpha$ , $\beta$ and $\gamma$ cyclodextrins by capillary electrophoresis and indirect UV detection

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Cyclodextrins have ring structures made of glucose connected by 1,4-glycoside linkage and they differ in the number of glucose on the ring. The interior of cyclodextrin is considerably less hydrophilic than its exterior; therefore, they are useful for carrying hydrophobic molecules. Due to their hydrophilic exterior, they are able to penetrate body tissues, which make them good candidates as drug carriers where

they can release biologically active compounds under specific conditions. However, different sizes of cyclodextrins form different complex with the same molecule, so, it is important to know the size of each cyclodextrin. Indirect UV-capillary electrophoresis and Taylor dispersion analysis are used to size  $\alpha$ ,  $\beta$  and  $\gamma$  cyclodextrins. Because cyclodextrins have low UV absorbance, indirect UV is used in which the background electrolyte has significantly higher UV absorbance than the target molecules, therefore, resulting in negative peaks. Using TDA, diameters of  $\alpha$ - and  $\gamma$ -CD are calculated to be 0.70 nm and 0.86 nm. The small standard deviation indicated the precise and reproducible measurement.

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