Development of α-Cyclodextrin-Based Orally Disintegrating Tablets for 4-Phenylbutyrate

Kindness L. Commey [1,2], Airi Enaka [1], Ryota Nakamura [1], Asami Yamamoto [1],

Kenji Tsukigawa [1,2], Koji Nishi [1,2], Daisuke Iohara [1,2], Fumitoshi Hirayama [1,2],

Masaki Otagiri [1,2,*] and Keishi Yamasaki [1,2,*]

[1]   Faculty of Pharmaceutical Sciences, Sojo University, 4-22-1 Ikeda, Kumamoto 860-0082, Japan; g1971d03@m.sojo-u.ac.jp (K.L.C.); g1851033@m.sojo-u.ac.jp (A.E.); g1951079@m.sojo-u.ac.jp (R.N.); g2051122@m.sojo-u.ac.jp (A.Y.); tsukigawa@ph.sojo-u.ac.jp (K.T.); knishi@ph.sojo-u.ac.jp (K.N.); dio@ph.sojo-u.ac.jp (D.I.); fhira@ph.sojo-u.ac.jp (F.H.)

[2]   DDS Research Institute, Sojo University, 4-22-1 Ikeda, Kumamoto 860-0082, Japan

*   Correspondence: otagirim@ph.sojo-u.ac.jp (M.O.); kcyama@ph.sojo-u.ac.jp (K.Y.).
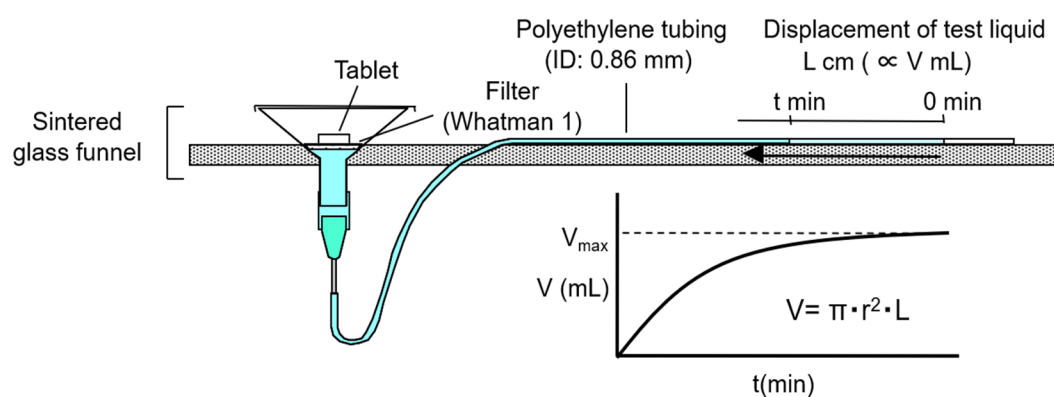
[Analysis of water uptake behavior]

The data were analyzed by nonlinear fitting to the following absorption rate equation assuming a pseudo-first order rate using GraphPad PRISM®, version 7 (GraphPad Software, Inc, San Diego, CA, USA).

$$V = V_{max}[1 - \exp(-k \cdot t)]$$

V：Water uptake at time, t
k：Water uptake rate constant
V_{max}：Maximum water uptake

- Test liquid：Ultrapure water
- Elution time：～10 min
- Number of tests：N＝3

Sintered glass funnel

Tablet

Polyethylene tubing (ID: 0.86 mm)

Filter (Whatman 1)

Displacement of test liquid L cm (∝ V mL)

t min   0 min

V_{max}

V (mL)

$$V = \pi \cdot r^2 \cdot L$$

t(min)

Figure S1. Experimental setup and data analysis method for the water uptake behavior of PB-CD ODTs.