

### Generation of multiple emulsions with capillary microfluidic device

강성민, 이창수\*  
충남대학교  
(rhadum@hanmir.com\*)

Multiple emulsion has been shown to be an excellent structure for encapsulation and release of active materials in applications, such as drug delivery, food processing, cosmetics and displays. Conventionally, multiple emulsions are manufactured through bulk emulsification. However, it is difficult to prepare monodisperse multiple emulsions due to the lack of both control over the droplet size and droplet size distribution. There are several researchs have been reported to overcome the limitations through the use of droplet-based micro fluidics with poly(dimethylsiloxane) (PDMS). Although fabricating such emulsions in a PDMS device is desirable, the process requires highly complex and difficult spatial control of the wettability of the PDMS channels. In contrast, capillary microfluidic devices can be more easily adapted to manufacture emulsions. Herein, we fabricate capillary microfluidic devices for monodisperse multiple emulsions which provides precise control for both the size and the number of inner droplets.