Supporting Information for

Evaluation of an Ion-Associate Phase Formed In Situ from the Aqueous Phase by Adding Benzethonium Chloride and Sodium Ethylbenzenesulfonate for Microextraction

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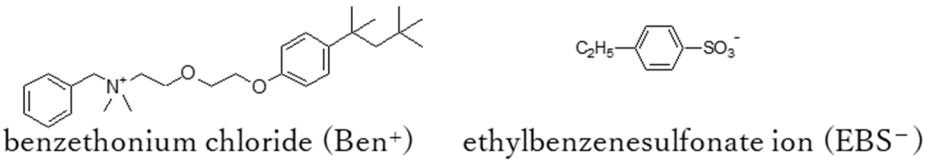

Figure S1 Structures of organic ions constituting the ion-associate phase (IAP)

3.3 Distribution coefficients for PAHs, estrogens, and pesticides

To evaluate the formed IAPs, the distribution coefficients for several environmental pollutants to IAPs consisting of BTC and TS^- or EBS^- ions were calculated and compared to the octanol-water distribution coefficients (K_{ow}). To determine the distribution coefficient, % *E* and V_{iap} must be determined. Calibration curves were obtained based on the peak area or peak height in the first and second extractions, and % *E* was calculated from the slopes of the curves. Let "*Grad*" be the slope when % *E* is 100%; then, the following system of equations is obtained from the slopes, $Grad_1$ and $Grad_2$, of the first and second extraction calibration curves, respectively (**Figure S2, S3**).

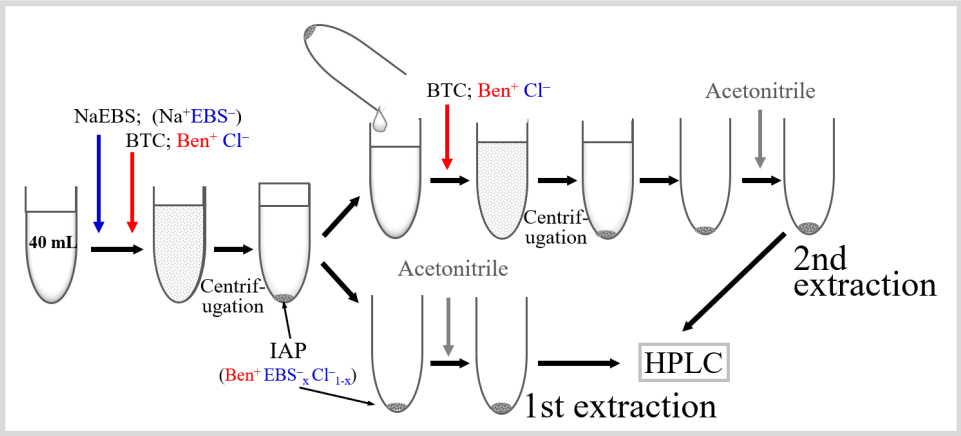

Figure S2 Scheme for measuring percentage extraction

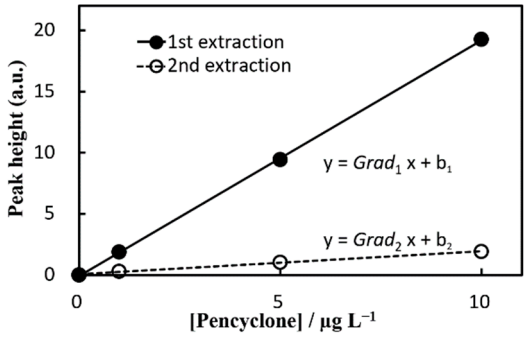

Figure S3 Example of calibration curves for calculating percentage extraction

$$Grad_1 = Grad \times \frac{\% E}{100} \quad \text{(S1)}$$

$$Grad_2 = \left(Grad \times \frac{100 - \% E}{100}\right) \times \frac{\% E}{100} \quad \text{(S2)}$$

Solving this system of equations yields *% E*.

$$\% E = \frac{Grad_1 - Grad_2}{Grad_1} \times 100 \quad \text{(S3)}$$

$$E = \frac{Grad_1 - Grad_2}{Grad_1} \quad \text{(S4)}$$