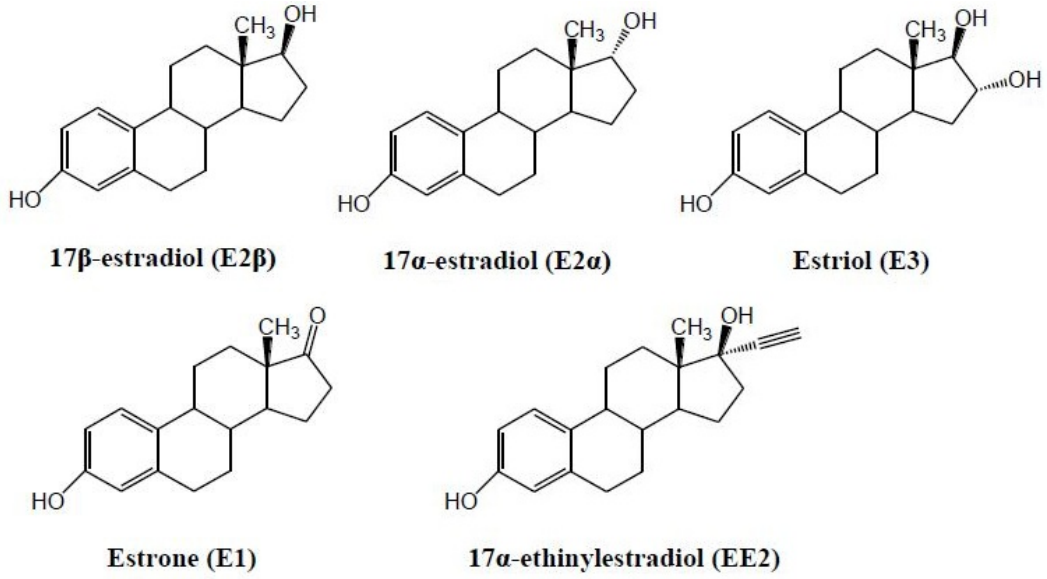
Electronic Supplementary Material (ESI) for Analytical Methods.

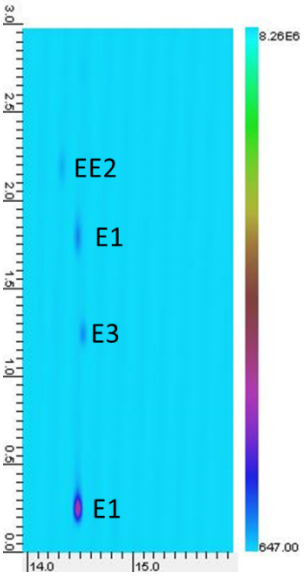
Supporting information

Determination of five estrogens in wastewater using a comprehensive two-dimensional gas chromatograph

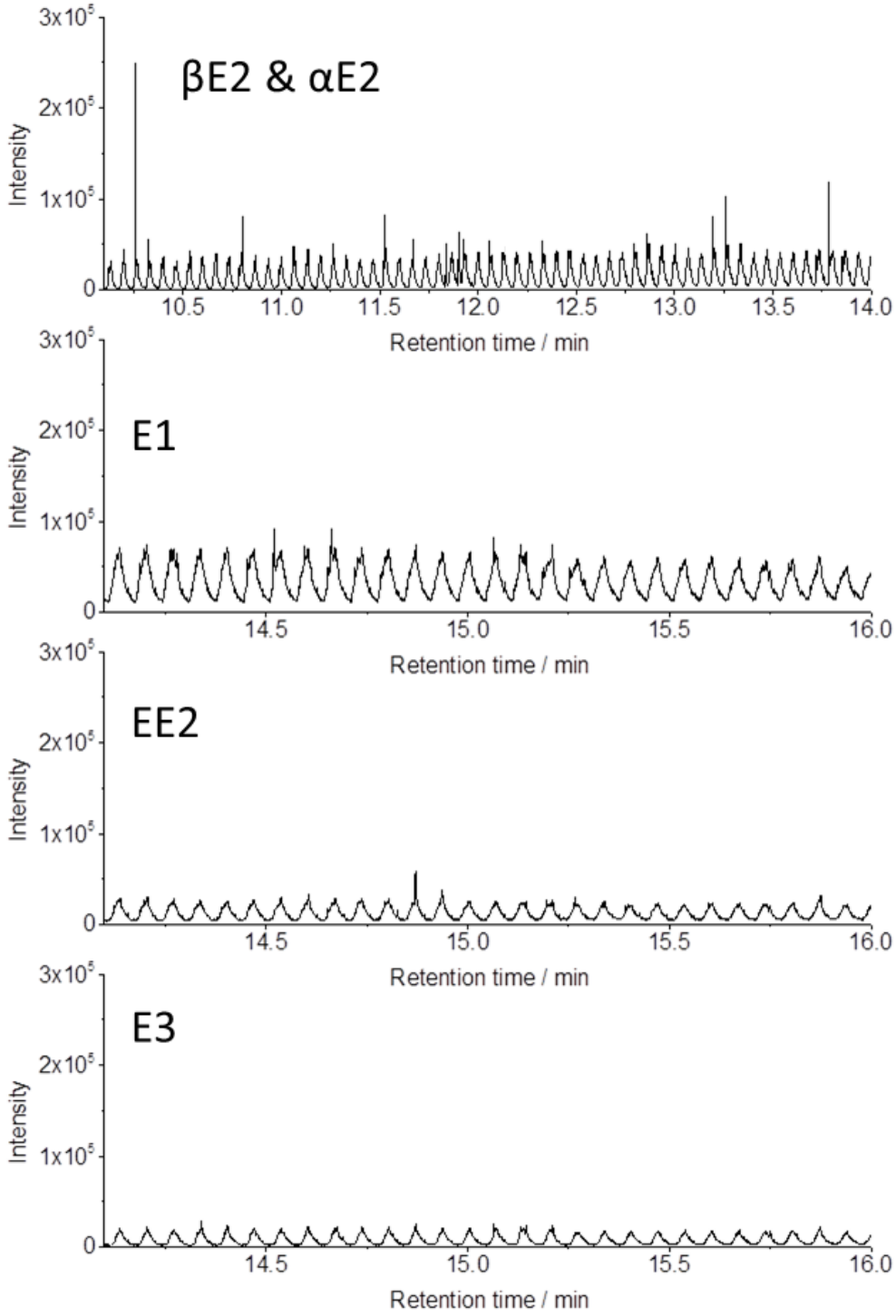
1. Structures of target estrogens



2. GCxGC image of the separation of E1, EE2 and E3 spiked 50 ng to 500 mL of influent extract.



3. GCxGC chromatograms of influent samples (collected may 2013).



Chromatograms of collected wastewater samples are included here. Hormones were not detected in the limited samples collected and analyzed during method development. There are two possible reasons for this observation. (1) Samples were collected in the summer and thermal and photo degradation of

estrogens is expected to be high in summer and (2) samples were collected in a college town and the population of the town is considerably lower during the summer. A broad environmental study is expected to be done in order to analyze influent, effluent, upstream, and downstream water samples monthly for a longer period (12 months) in order to obtain clear idea.