Supplementary Material 1. Parameters of LC-MS analysis 2014-2017 and 2018-2019.

Table 1. 2014-2017 Parameters

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| --- | --- |
| Measuring Instrument, Parameter | Model Number, Setting |
| HPLC | Agilent 1200 series |
| Column | TSKgel ODS-100V 5 mm 3 x 50 mm(TOSOH) |
| Column Temperature | 40℃ |
| Eluent | Solvent A: Water, B: Acetonitrile, both HPLC grade and added with 0.1% v/v formic acid (all the solvents obtained from FUJIFILM Wako Pure Chemical Corporation) |
| Gradient Condition (Elapsed Time(min):B%) | 0min:3%, 15min:97%, 20min:97%, 20.1min:3%, 25min:3% |
| Flow Velocity | 0.4 mL/min |
| Injection Volume | 5μL |
| High-Resolution Mass Spectrometer | LTQ ORBITRAP XL(Thermo fisher scientific) |
| Ionization Method | ESI positive mode |
| Mass Range | 100-1500 m/z |
| Scan Events (3sec interval for the whole process from event 1 to 5) | Event 1: Full scan with ORBITRAP Event 2: MS/MS measurement by ion trap for ions with the strongest intensities in full scan Event 3: MS/MS measurement by ion trap for ions with the 2nd strongest intensities in full scan Event 4: MS/MS measurement by ion trap for ions with the 3rd strongest intensities in full scan Event 5: MS/MS measurement by ion trap for ions with the 4th strongest intensities in full scan |
| Photo Diode Array Measurement Range | 190-950nm |

Table 2. 2018-2019 Parameters

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| --- | --- | --- |
| Ultimate 3000  Analysis conditions |  |  |
| HPLC | Ultimate 3000 RSLC |  |
| Column | InertSustain AQ-C18 (2.1 x 150 mm, 3 mm-particle, GL Science) | |
| Column Temperature | 40℃ |  |
| Mobile Phase | Solvent A: Water, B: Acetonitrile, both HPLC grade and added with 0.1% v/v formic acid  (all the solvent obtained from FUJIFILM Wako Pure Chemical Corporation) | |
| Flow Velocity | 0.2 ml/min | |  |
| Injection Volume | 2 ml |  |
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|  |  |  |
| LC Gradient Program |  | |
| Time (min) | Mobile Phase A (%) | Mobile Phase B (%) |
| 0 | 98 | 2 |
| 3 | 98 | 2 |
| 30 | 2 | 98 |
| 35 | 2 | 98 |
| 35.1 | 98 | 2 |
| 40 | 98 | 2 |
| Q Exactive  Analysis conditions |  |  |
| Measuring Time | 3 - 30 min |  |
| Ionization Method | Electro Spray Ionization (ESI) |  |
| Mass Range | m/z: 80 - 1,200 |  |
| Full Scan Resolution | 70,000 |  |
| MS/MS Scan Resolution | 17,500 |  |
| MS/MS Precursor | Data Dependent Scan |  |
| Dynamic Exclusion | 20 sec |  |
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