

Supplementary material

Strategic Immobilization of α -Amylase on ZIF-8 Nanoplatfrom for Targeted Bioactivity Screening in *Gynura medica* Extracts

Ke Ma*, Yuying An, Yu-qing Zhang, Gui-fang Zhong

School of Food and Biological Engineering, Key Laboratory of Industrial

Biotechnology in the Tobacco Industry, Zhengzhou University of Light Industry, 136

Kexuedadao Road, 450008, Zhengzhou, China

Content

Figure 1S: Scanning electron microscopy images of ZIF-8 @ α -amylase immobilized materials synthesized with different concentrations of 2-methylimidazole

Figure 2S: FTIR spectra of ZIF-8@ α -amylase immobilized materials synthesized by α -amylase at different 2-methylimidazole concentration

Figure 3S: Scanning electron microscopy of ZIF-8@ α -amylase immobilized materials synthesized with different concentrations of zinc nitrate

Figure 4S: FTIR spectra of ZIF-8@ α -amylase immobilized materials synthesized by α -amylase at different concentrations

Figure 5S: Variation trend of enzyme loading rate and amount with α -amylase concentration in ZIF-8@ α -amylase immobilized material

Figure 6S: Enzymatic properties of ZIF-8@ α -amylase (a: The effect of temperature

on enzyme activity; B: The effect of pH on enzyme activity; C: Comparison of reaction kinetics curves before and after immobilization)

Figure 7S: Liquid chromatography-mass spectrometry analysis of mixed sample total ion chromatogram

Table 1S: Effects of 2-methylimidazole concentration changes on enzyme activity

Table 2S: Effect of zinc nitrate concentration on the activity of immobilized enzyme

Table 3S: The comprehensive chemical analysis of affinity extraction eluates

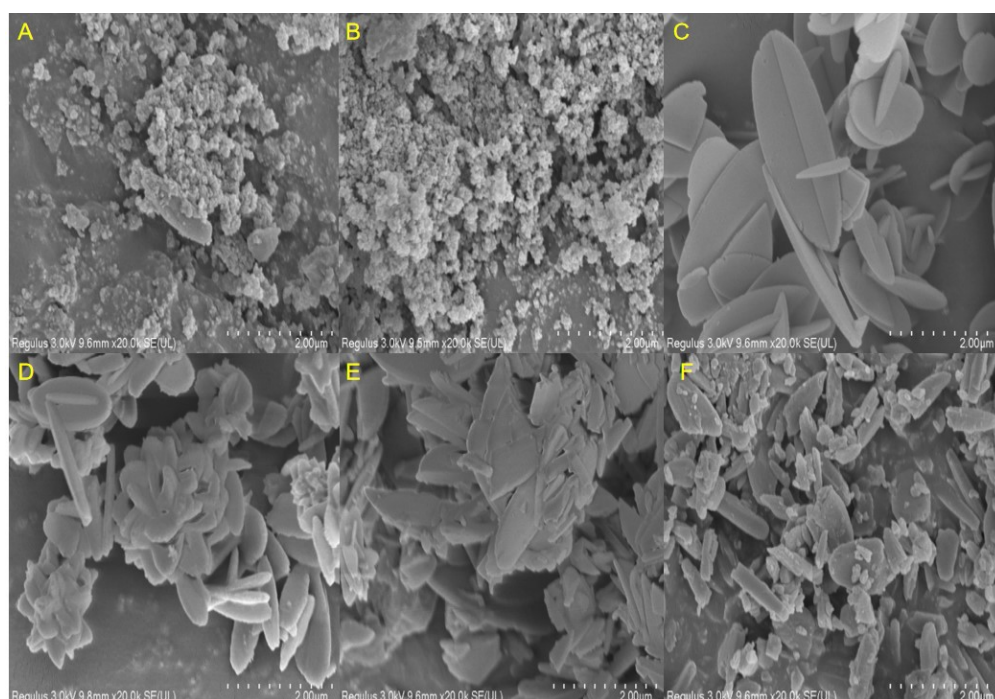


Figure 1S Scanning electron microscopy images of ZIF-8 @ α -amylase immobilized materials synthesized with different concentrations of 2-methylimidazole (A: 0.1 M, B: 0.2 M, C: 0.4 M, D: 0.6 M, E: 0.8 M, F:1.0 M)

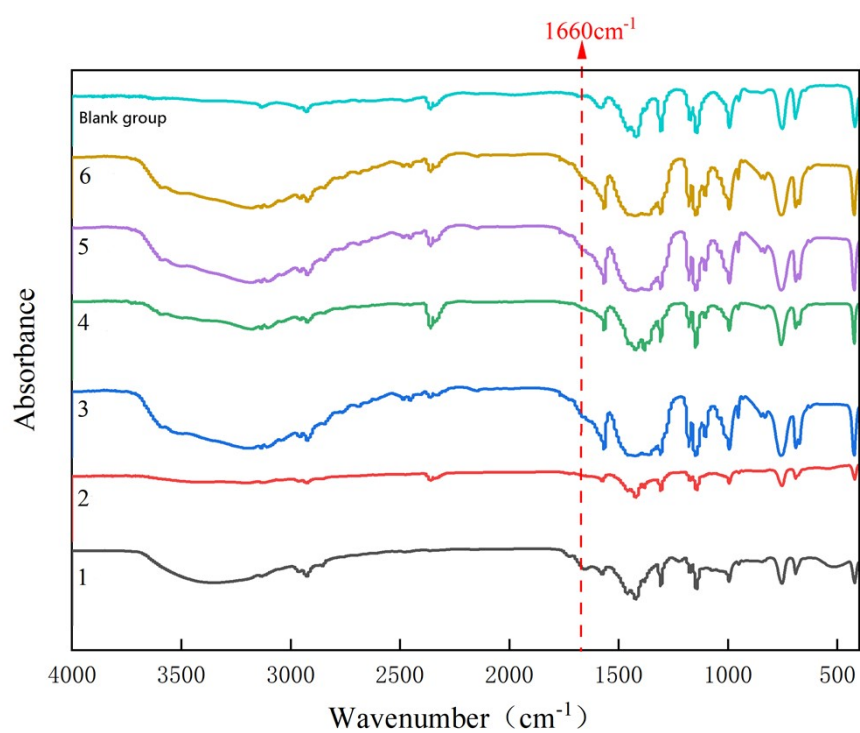


Figure 2S FTIR spectra of ZIF-8@ α -amylase immobilized materials synthesized by α -amylase at different 2-methylimidazole concentration (1: 0.1 M, 2: 0.2 M, 3: 0.4 M, 4: 0.6 M, 5: 0.8 M, 6:1.0 M)

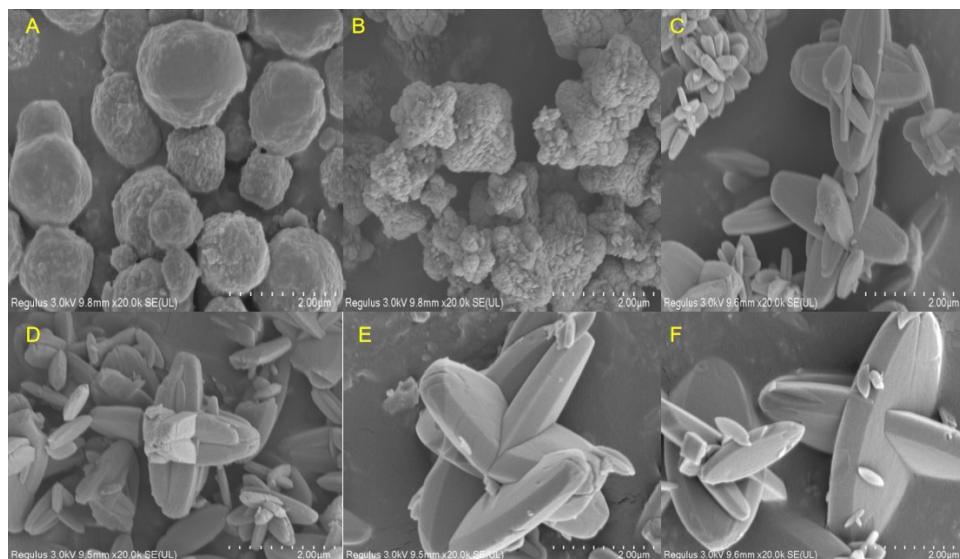


Figure 3S Scanning electron microscopy of ZIF-8@ α -amylase immobilized materials synthesized with different zinc nitrate concentrations (A: 0.1 M, B: 0.2 M, C: 0.3 M, D: 0.4 M, E: 0.5 M, F: 0.6 M)

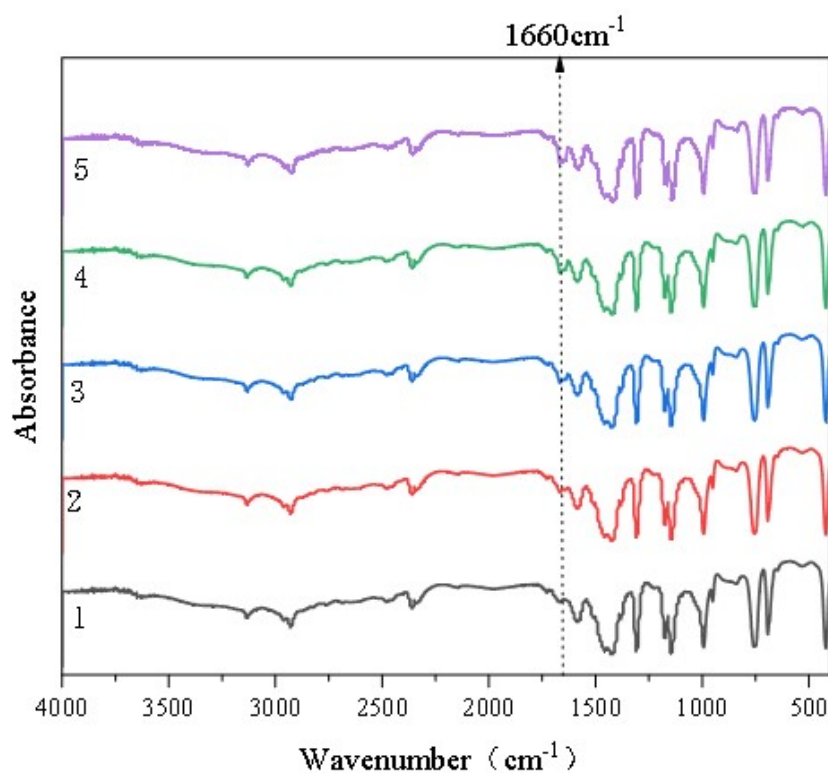


Figure 4S FTIR spectra of ZIF-8@ α -amylase immobilized materials synthesized by α -amylase at different concentrations (1: 5 mg/mL, 2: 10 mg/mL, 3: 20 mg/mL, 3: 30 mg/mL, 4: 40 mg/mL, 5: 50 mg/mL)

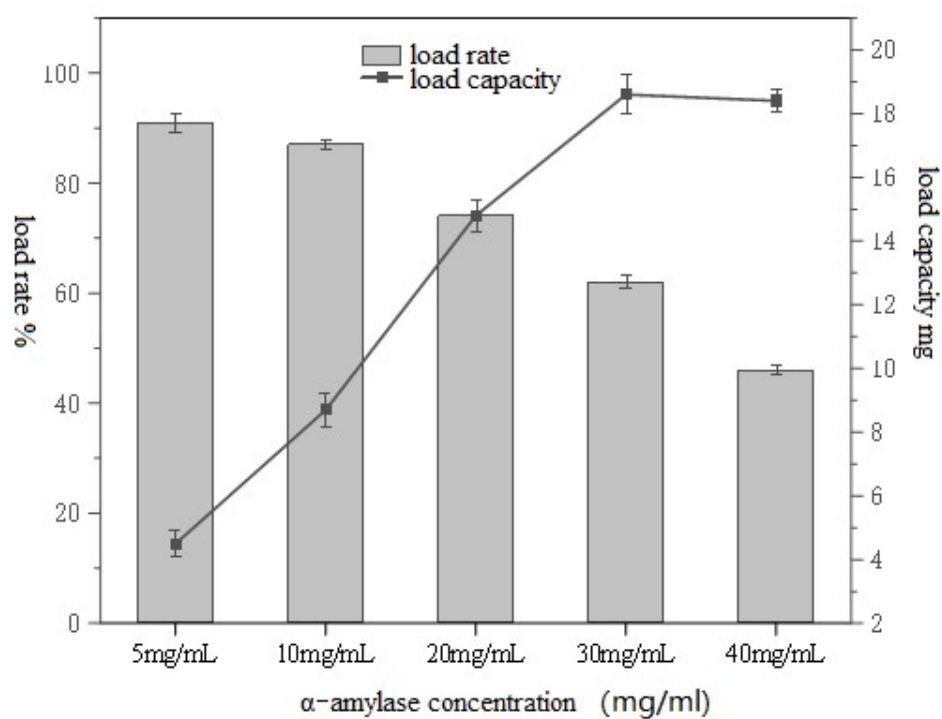


Figure 5S Variation trend of enzyme loading rate and amount with α -amylase concentration in ZIF-8@ α -amylase immobilized material

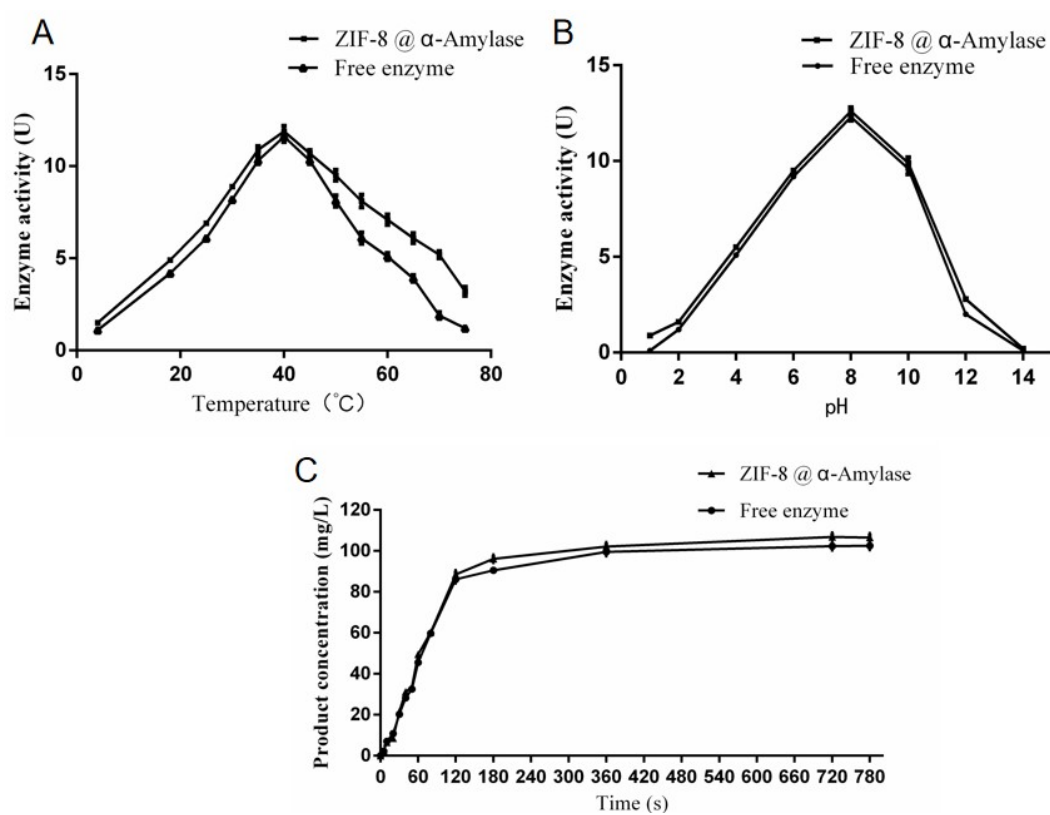


Figure 6S Enzymatic properties of ZIF-8@α-amylase (A: The effect of temperature on enzyme activity; B: The effect of pH on enzyme activity; C: Comparison of reaction kinetics curves before and after immobilization)

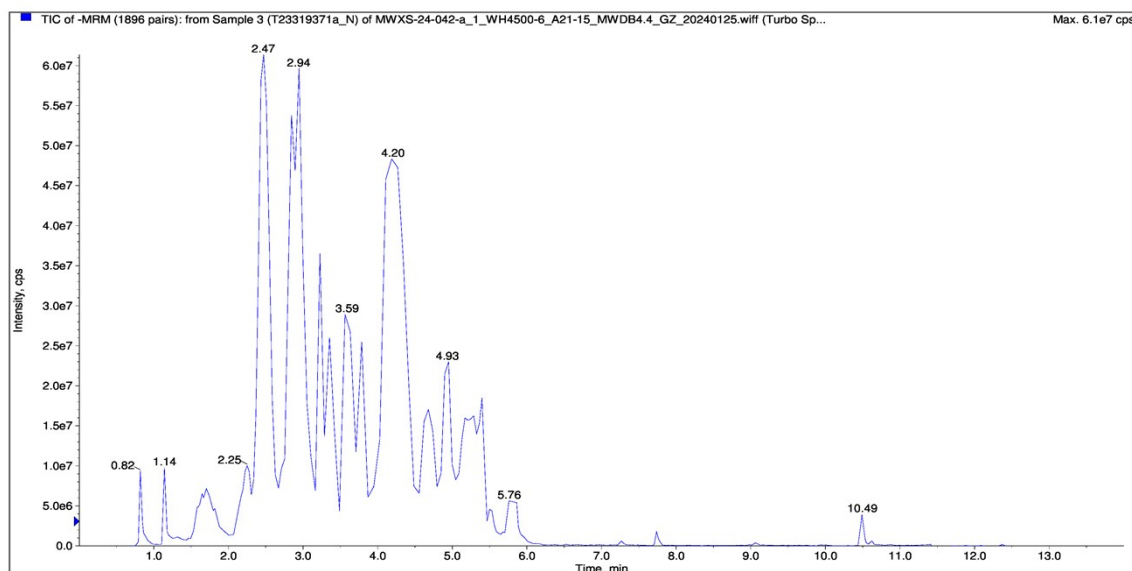


Figure 7S: Liquid chromatography-mass spectrometry analysis of mixed sample total ion chromatogram

Table 1S: Effects of 2-methylimidazole concentration changes on enzyme activity

| No. | 2-methylimidazole concentration/M | Immobilized enzyme activity/U |
|-----|--------------------------------------|----------------------------------|
| 1 | 0.1 | 0.029 |
| 2 | 0.2 | 0.056 |
| 3 | 0.4 | 0.078 |
| 4 | 0.6 | 0.128 |
| 5 | 0.8 | 0.204 |
| 6 | 1.0 | 0.015 |

Table 2S Effect of zinc nitrate concentration on the activity of immobilized enzyme

| No. | Zinc nitrate concentration/M | Immobilized enzyme activity/U |
|-----|---------------------------------|----------------------------------|
| 1 | 0.3 | 0.128 |
| 2 | 0.4 | 0.144 |
| 3 | 0.5 | 0.204 |
| 4 | 0.6 | 0.218 |
| 5 | 0.7 | 0.224 |
| 6 | 0.8 | 0.231 |

Table 3S The comprehensive chemical analysis of affinity extraction eluates

| PeakID | Title | Adduct | Formula | Superclass | Class |
|--------|---|--------------------|---------------|-------------------------------------|--|
| 582 | dioctylamine | [M+H] ⁺ | C16H35 N | Organic nitrogen compounds | Organonitrogen compounds |
| 209 | Alpha-cyclodextrin | [M+H] ⁺ | C36H60 O30 | Organic oxygen compounds | Organooxygen compounds |
| 237 | Amarogentin | [M+H] ⁺ | C29H30 O13 | Benzenoids | Benzene and substituted derivatives |
| 449 | N-Methylnuciferine | [M+H] ⁺ | C20H24 NO2 | Alkaloids and derivatives | Aporphines |
| 87 | 3-Methylpyrazole | [M+H] ⁺ | C4H6N2 | Organoheterocyclic compounds | Azoles |
| 587 | Tetradecyldiethanolamin e | [M+H] ⁺ | C18H39 NO2 | Organic nitrogen compounds | Organonitrogen compounds |
| 815 | Diphenylphosphate | [M+H] ⁺ | C12H11 O4P | Organic acids and derivatives | Organic phosphoric acids and derivatives |
| 617 | N-Methyldioctylamine | [M+H] ⁺ | C17H37 N | Organic nitrogen compounds | Organonitrogen compounds |
| 201 | Phenylacetaldehyde | [M+H] ⁺ | C8H8O | Benzenoids | Benzene and substituted derivatives |
| 564 | Dicyclohexylurea | [M+H] ⁺ | C13H24 N2O | Organic acids and derivatives | Organic carbonic acids and derivatives |
| 910 | Phthalic anhydride | [M+H] ⁺ | C8H4O3 | Organoheterocyclic compounds | Benzofurans |
| 507 | Coptisine | [M+H] ⁺ | C19H14 NO4 | Alkaloids and derivatives | Protoberberine alkaloids and derivatives |
| 857 | Stearamide | [M+H] ⁺ | C18H37 NO | Organic acids and derivatives | Carboximidic acids and derivatives |
| 589 | N,N- Dimethyltetradecylamin e-N-oxide | [M+H] ⁺ | C16H35 NO | Organic nitrogen compounds | Organonitrogen compounds |
| 65 | Choline | [M+H] ⁺ | C5H13N O | Organic nitrogen compounds | Organonitrogen compounds |
| 234 | 2"-Rhamnosylvitexin | [M+H] ⁺ | C27H30 O14 | Phenylpropanoids and polyketides | Flavonoids |
| 608 | 5-O- methylvisammioside | [M+H] ⁺ | C22H28 O10 | Organoheterocyclic compounds | Benzopyrans |
| 261 | Pterostilbene | [M+H] ⁺ | C16H16 O3 | Phenylpropanoids and polyketides | Stilbenes |
| 683 | Diethyl-phthalate | [M+H] ⁺ | C12H14 | Benzenoids | Benzene and |

| PeakID | Title | Adduct | Formula | Superclass | Class |
|--------|---|--------------------|------------|---------------------------------|--|
| | | | O4 | | substituted derivatives |
| 829 | 13Z-Docosenamide | [M+H] ⁺ | C22H43NO | Organic nitrogen compounds | Organic nitrogen compounds |
| 117 | Cyclo-prolylglycine | [M+H] ⁺ | C7H10N2O2 | Organic acids and derivatives | Carboxylic acids and derivatives |
| 580 | N,N-Dimethyldodecylamine | [M+H] ⁺ | C14H31N | Organic nitrogen compounds | Organonitrogen compounds |
| 408 | Imidocarb | [M+H] ⁺ | C19H20N6O | Benzenoids | Benzene and substituted derivatives |
| 178 | PYROGLUTAMATE | [M+H] ⁺ | C5H7NO3 | Organic acids and derivatives | Carboxylic acids and derivatives |
| 645 | 1-Octadecylamine | [M+H] ⁺ | C18H39N | Organic nitrogen compounds | Organonitrogen compounds |
| 94 | Proline betaine | [M+H] ⁺ | C7H13NO2 | Organic acids and derivatives | Carboxylic acids and derivatives |
| 161 | 3-Acetylphenanthrene | [M+H] ⁺ | C16H12O | Benzenoids | Phenanthrenes and derivatives |
| 462 | (Z)-Guggulsterone | [M+H] ⁺ | C21H28O2 | Lipids and lipid-like molecules | Steroids and steroid derivatives |
| 366 | 1-(3-(Trifluoromethyl)phenyl)piperazine | [M+H] ⁺ | C11H13F3N2 | Organoheterocyclic compounds | Diazinanes |
| 675 | alpha-Cyperone | [M+H] ⁺ | C15H22O | Lipids and lipid-like molecules | Prenol lipids |
| 646 | Triphenyl phosphate (TPP) | [M+H] ⁺ | C18H15O4P | Organic acids and derivatives | Organic phosphoric acids and derivatives |
| 291 | Indoline | [M+H] ⁺ | C8H9N | Organoheterocyclic compounds | Indoles and derivatives |
| 256 | Piperidine | [M+H] ⁺ | C5H11N | Organoheterocyclic compounds | Piperidines |
| 904 | NKH477 | [M+H] ⁺ | C27H43NO8 | Lipids and lipid-like molecules | Prenol lipids |
| 697 | Corynoxine | [M+H] ⁺ | C22H26N2O4 | Organoheterocyclic compounds | Indolizidines |
| 569 | Stearic acid | [M+H] ⁺ | C18H36O2 | Lipids and lipid-like molecules | Fatty Acyls |
| 263 | ANABASAMINE | [M+H] ⁺ | C16H19N3 | Mixed metal/non-metal compounds | Alkali metal salts |
| 453 | Cyclo(proline-leucine) | [M+H] ⁺ | C11H18N2O2 | Organic acids and derivatives | Carboxylic acids and derivatives |
| 185 | Guanine | [M+H] ⁺ | C5H5N5O | Organoheterocyclic compounds | Imidazopyrimidines |
| 446 | Harmane | [M+H] ⁺ | C12H10N2 | Alkaloids and derivatives | Harmala alkaloids |

| PeakID | Title | Adduct | Formula | Superclass | Class |
|--------|--|--------------------|--|---|-------------------------------------|
| 557 | Brevicarine | [M+H] ⁺ | C ₁₇ H ₂₁ N ₃ | Alkaloids and derivatives | Harmala alkaloids |
| 520 | 4-Hydroxycoumarin | [M+H] ⁺ | C ₉ H ₆ O ₃ | Phenylpropanoids and polyketides | Coumarins and derivatives |
| 879 | Asarone | [M+H] ⁺ | C ₁₂ H ₁₆ O ₃ | Benzenoids | Phenol ethers |
| 191 | p-Coumaric acid | [M+H] ⁺ | C ₉ H ₈ O ₃ | Phenylpropanoids and polyketides | Cinnamic acids and derivatives |
| 5 | benzylazanium | [M+H] ⁺ | C ₇ H ₉ N | Benzenoids | Benzene and substituted derivatives |
| 7 | KOJIC ACID | [M+H] ⁺ | C ₆ H ₆ O ₄ | Benzenoids | Naphthalenes |
| 11 | 4-Methylpyrazole | [M+H] ⁺ | C ₄ H ₆ N ₂ | Organoheterocyclic compounds | Azoles |
| 14 | Piperazine | [M+H] ⁺ | C ₄ H ₁₀ N ₂ | Organoheterocyclic compounds | Diazinanes |
| 15 | Hypotaaurine | [M+H] ⁺ | C ₂ H ₇ NO ₂ S | Organic acids and derivatives | Sulfinic acids and derivatives |
| 18 | 4-amino-2-chloropyridine | [M+H] ⁺ | C ₅ H ₅ ClN ₂ | Organoheterocyclic compounds | Pyridines and derivatives |
| 21 | Ectoine | [M+H] ⁺ | C ₆ H ₁₀ N ₂ O ₂ | Organic acids and derivatives | Carboxylic acids and derivatives |
| 22 | OROTATE | [M+H] ⁺ | C ₅ H ₄ N ₂ O ₄ | Organoheterocyclic compounds | Diazines |
| 25 | Methiocarb-sulfoxide phenol | [M+H] ⁺ | C ₉ H ₁₂ O ₂ S | Benzenoids | Benzene and substituted derivatives |
| 26 | 1-Naphthoic acid methyl ester | [M+H] ⁺ | C ₁₂ H ₁₀ O ₂ | Benzenoids | Naphthalenes |
| 28 | Splitomicin | [M+H] ⁺ | C ₁₃ H ₁₀ O ₂ | Organoheterocyclic compounds | Naphthopyrans |
| 30 | ETANIDAZOLE | [M+H] ⁺ | C ₇ H ₁₀ N ₄ O ₄ | Organic nitrogen compounds | Organonitrogen compounds |
| 31 | Anserine | [M+H] ⁺ | C ₁₀ H ₁₆ N ₄ O ₃ | Organic acids and derivatives | Peptidomimetics |
| 67 | 4-Amino-5-hydroxymethyl-2-methylpyrimidine | [M+H] ⁺ | C ₆ H ₉ N ₃ O | Organoheterocyclic compounds | Diazines |
| 77 | Spectra matches to compound Tolaasin E | [M+H] ⁺ | C ₉₂ H ₁₅₉ N ₂₁ O ₂₄ | Organic acids and derivatives | Peptidomimetics |
| 88 | 1,3-DIMETHYLURACIL | [M+H] ⁺ | C ₆ H ₈ N ₂ O ₂ | Organoheterocyclic compounds | Diazines |
| 89 | Justicidin B | [M+H] ⁺ | C ₂₁ H ₁₆ O ₆ | Lignans, neolignans and related compounds | Arylnaphthalene lignans |
| 92 | Dimethyl sulfone | [M+H] ⁺ | C ₂ H ₆ O ₂ S | Organosulfur compounds | Sulfonyls |

| PeakID | Title | Adduct | Formula | Superclass | Class |
|--------|--|----------------------|--------------------|---------------------------------|-------------------------------------|
| 93 | Ortophosphate | [M+H] ⁺ | H3O4P | Homogeneous non-metal compounds | Non-metal oxoanionic compounds |
| 95 | ACECLIDINE | [M+H] ⁺ | C9H15N O2 | Organoheterocyclic compounds | Quinuclidines |
| 114 | N-Acetyl-L-Histidine | [M+H] ⁺ | C8H11N 3O3 | Organic acids and derivatives | Carboxylic acids and derivatives |
| 121 | 1-Hexylamine | [M+H] ⁺ | C6H15N | Organic nitrogen compounds | Organonitrogen compounds |
| 122 | 2,4-Heptadienal | [M+H] ⁺ | C7H10O | Organic oxygen compounds | Organooxygen compounds |
| 124 | Histamine | [M+H] ⁺ | C5H9N3 | Organic nitrogen compounds | Organonitrogen compounds |
| 137 | Piperine | [M+H] ⁺ | C17H19 NO3 | Alkaloids and derivatives | |
| 139 | 1-Naphthonitrile | [M+H] ⁺ | C11H7N | Benzenoids | Naphthalenes |
| 140 | 1-Isothiocyanato-8-(methylsulfinyl)-octane | [M+H] ⁺ | C10H19 NOS2 | Organosulfur compounds | Sulfoxides |
| 144 | DMPO | [M+H] ⁺ | C6H11N O | Organoheterocyclic compounds | Pyrrolines |
| 145 | Pyrazinamide | [M+NH4] ⁺ | C5H5N3 O | Organoheterocyclic compounds | Diazines |
| 147 | Trans-4-Hydroxy-L-proline | [M+H] ⁺ | C5H9NO 3 | Organic acids and derivatives | Carboxylic acids and derivatives |
| 149 | Trigonelline | [M+H] ⁺ | C7H7NO 2 | Alkaloids and derivatives | |
| 150 | Methionine | [M+NH4] ⁺ | C5H11N O2S | Organic acids and derivatives | Carboxylic acids and derivatives |
| 151 | Xanthine | [M+H] ⁺ | C5H4N4 O2 | Organoheterocyclic compounds | Imidazopyrimidines |
| 152 | 2,5-dihydroxy benzoic acid | [M+H] ⁺ | C7H6O4 | Benzenoids | Benzene and substituted derivatives |
| 153 | Pyridoxamine | [M+H] ⁺ | C8H12N 2O2 | Organoheterocyclic compounds | Pyridines and derivatives |
| 620 | Dodecylbenzenesulfonic acid | 325.178 | [M-H] ⁻ | C18H30O3S | Benzenoids |
| 218 | (S)-MALATE | 133.0117 | [M-H] ⁻ | C4H6O5 | Organic acids and derivatives |
| 633 | Canrenone | 339.193 | [M-H] ⁻ | C22H28O3 | Lipids and lipid-like molecules |
| 614 | Tocotrienol | 423.3191 | [M-H] ⁻ | C29H44O2 | Lipids and lipid-like molecules |
| 103 | Pyrophosphate | 176.9323 | [M-H] ⁻ | H4O7P2 | Homogeneous non-metal compounds |
| 122 | BETA-GLYCEROPHOSPHAT | 170.9964 | [M-H] ⁻ | C3H9O6P | Lipids and lipid-like molecules |

| PeakID | Title | Adduct | Formula | Superclass | Class |
|--------|-----------------------------------|----------|---------|--------------|---|
| | E | | | | |
| 246 | 3-Furoic acid | 111.0062 | [M-H]- | C5H4O3 | Organoheterocyclic compounds |
| 575 | 13-OxoODE | 293.2058 | [M-H]- | C18H30O3 | Lipids and lipid-like molecules |
| 352 | L-Phenylalanine | 164.0683 | [M-H]- | C9H11NO2 | Organic acids and derivatives |
| 234 | Itaconic acid | 129.0171 | [M-H]- | C5H6O4 | Lipids and lipid-like molecules |
| 465 | Fenbufen | 253.0888 | [M-H]- | C16H14O3 | Organic oxygen compounds |
| 508 | 5-HYDROXY DICLOFENAC | 310.0029 | [M-H]- | C14H11Cl2NO3 | Benzenoids |
| 599 | Tryptophenolide | 311.1624 | [M-H]- | C20H24O3 | Lipids and lipid-like molecules |
| 2 | Acrylate | 70.99739 | [M-H]- | C3H4O2 | Organic acids and derivatives |
| 4 | Oxalacetic acid | 130.9633 | [M-H]- | C4H4O5 | Organic acids and derivatives |
| 20 | Acetylenedicarboxylic acid | 112.9832 | [M-H]- | C4H2O4 | Organic acids and derivatives |
| 88 | B-(4-Fluorobenzoyl)propionic acid | 195.0463 | [M-H]- | C10H9FO3 | Organic oxygen compounds |
| 102 | 4-Fluorocinnamic acid | 165.0365 | [M-H]- | C9H7FO2 | Phenylpropanoids and polyketides |
| 118 | sulfite (Sodium sulfite) | 80.96158 | [M-H]- | H2O3S | Homogeneous non-metal compounds |
| 121 | Decanoate | 170.9947 | [M-H]- | C10H20O2 | Lipids and lipid-like molecules |
| 128 | (E)-C-HDMAPP | 259.015 | [M-H]- | C6H14O7P2 | Organic acids and derivatives |
| 165 | L-Thyroxine | 775.6833 | [M-H]- | C15H11I4NO4 | Organic acids and derivatives |
| 182 | 9-Fluorenone | 179.0518 | [M-H]- | C13H8O | Benzenoids |
| 183 | D-SACCHARIC ACID | 209.0254 | [M-H]- | C6H10O8 | Organic oxygen compounds |
| 184 | 2-Hydroxyanthraquinone | 223.0406 | [M-H]- | C14H8O3 | Benzenoids |
| 210 | Maleamic acid | 114.0171 | [M-H]- | C4H5NO3 | Lipids and lipid-like molecules |
| 211 | 3,4-DIHYDROXY-L-PHENYLALANINE | 196.0687 | [M-H]- | C9H11NO4 | Organic acids and derivatives |
| 213 | URIDINE-5-MONOPHOSPHATE | 323.0222 | [M-H]- | C9H13N2O9P | Nucleosides, nucleotides, and analogues |
| 217 | MALEIC ACID | 115.0013 | [M-H]- | C4H4O4 | Organic acids and |

| PeakID | Title | Adduct | Formula | Superclass | Class |
|--------|--------------------------------------|----------|---------|--------------|---|
| | | | | | derivatives |
| 219 | Fluroxypyr | 252.9663 | [M-H]- | C7H5Cl2FN2O3 | Organoheterocyclic compounds |
| 221 | 6- PHOSPHOGLUCONIC ACID | 275.0162 | [M-H]- | C6H13O10P | Organic oxygen compounds |
| 233 | 1,4-Butynediol | 85.02721 | [M-H]- | C4H6O2 | Organic oxygen compounds |
| 235 | Citramalate | 147.026 | [M-H]- | C5H8O5 | Lipids and lipid-like molecules |
| 237 | trans-Aconitate | 173.0059 | [M-H]- | C6H6O6 | Organic acids and derivatives |
| 238 | 1-Hydroxy-2-naphthoic acid | 187.0383 | [M-H]- | C11H8O3 | Benzenoids |
| 239 | N-1-Desalkylflurazepam | 287.0381 | [M-H]- | C15H10ClFN2O | Organoheterocyclic compounds |
| 240 | Naptalam | 290.0822 | [M-H]- | C18H13NO3 | Benzenoids |
| 242 | 3',5'-CYCLIC AMP | 328.037 | [M-H]- | C10H12N5O6P | Nucleosides, nucleotides, and analogues |
| 243 | AMP | 346.0479 | [M-H]- | C10H14N5O7P | Nucleosides, nucleotides, and analogues |
| 248 | 5-OXO-D-PROLINE | 128.0327 | [M-H]- | C5H7NO3 | Organic acids and derivatives |
| 249 | N-Methyl-L-glutamate | 160.0583 | [M-H]- | C6H11NO4 | Organic acids and derivatives |
| 251 | CITRATE | 191.0158 | [M-H]- | C6H8O7 | Organic acids and derivatives |
| 253 | lipoamide | 204.0464 | [M-H]- | C8H15NOS2 | Organoheterocyclic compounds |
| 254 | Uridine | 243.0568 | [M-H]- | C9H12N2O6 | Nucleosides, nucleotides, and analogues |
| 259 | Caffeoyl-N-tyrosine | 341.9016 | [M-H]- | C18H17NO6 | Organic acids and derivatives |
| 260 | GUANOSINE 5'- MONOPHOSPHATE | 362.0415 | [M-H]- | C10H14N5O8P | Nucleosides, nucleotides, and analogues |
| 264 | L-Tyrosine | 180.062 | [M-H]- | C9H11NO3 | Organic acids and derivatives |
| 265 | 3-Methyluridine | 257.0728 | [M-H]- | C10H14N2O6 | Nucleosides, nucleotides, and analogues |
| 266 | Guanosine-3',5'-cyclic monophosphate | 344.0334 | [M-H]- | C10H12N5O7P | Nucleosides, nucleotides, and analogues |

| PeakID | Title | Adduct | Formula | Superclass | Class |
|--------|--|----------|----------|--------------|----------------------------------|
| 278 | Carbonyl cyanide chlorophenylhydrazone | 203.0151 | [M-H]- | C9H5ClN4 | Benzenoids |
| 279 | Fluorescein | 331.063 | [M-H]- | C20H12O5 | Organoheterocyclic compounds |
| 281 | Betadex | 1133.341 | [M-2H]2- | C42H70O35 | Organic oxygen compounds |
| 334 | Norleucine | 130.0845 | [M-H]- | C6H13NO2 | Organic acids and derivatives |
| 335 | Phosphotyrosine | 260.0391 | [M-H]- | C9H12NO6P | Organic acids and derivatives |
| 338 | alpha-guaiaconic acid | 339.123 | [M-H]- | C20H20O5 | Organoheterocyclic compounds |
| 339 | Placodiolic acid | 375.0983 | [M-H]- | C19H20O8 | Benzenoids |
| 340 | Samidin | 385.1271 | [M-H]- | C21H22O7 | Phenylpropanoids and polyketides |
| 357 | Porphobilinogen | 225.0833 | [M-H]- | C10H14N2O4 | Organic nitrogen compounds |
| 358 | Ginnalin B | 315.0674 | [M-H]- | C13H16O9 | Benzenoids |
| 359 | Traumatic Acid | 227.1347 | [M-H]- | C12H20O4 | Lipids and lipid-like molecules |
| 360 | ADIPIC ACID | 145.047 | [M-H]- | C6H10O4 | Lipids and lipid-like molecules |
| 361 | Resveratrol | 227.0991 | [M-H]- | C14H12O3 | Phenylpropanoids and polyketides |
| 362 | Isobavachin | 323.1283 | [M-H]- | C20H20O4 | Phenylpropanoids and polyketides |
| 363 | Climbazol | 291.0936 | [M-H]- | C15H17ClN2O2 | Benzenoids |
| 365 | Coumaroyl quinic acid | 337.0865 | [M-H]- | C16H18O8 | Organic oxygen compounds |
| 366 | 2-NBDG | 341.0806 | [M-H]- | C12H14N4O8 | Organoheterocyclic compounds |
| 367 | PRIM-O-GLUCOSYLCIMIFUGIN | 467.1472 | [M-H]- | C22H28O11 | Organoheterocyclic compounds |
| 368 | p-Acetaminobenzaldehyde | 162.0529 | [M-H]- | C9H9NO2 | Benzenoids |
| 369 | Coumaroyl Hexoside | 325.0864 | [M-H]- | C15H18O8 | Phenylpropanoids and polyketides |
| 370 | Axitinib | 385.1101 | [M-H]- | C22H18N4OS | Organosulfur compounds |
| 371 | 2-Acrylamido-2-methyl-1-propanesulfonic acid | 206.041 | [M-H]- | C7H13NO4S | Organic acids and derivatives |
| 373 | agnuside | 465.1349 | [M-H]- | C22H26O11 | Lipids and lipid-like molecules |
| 374 | Mesaconic acid | 129.0518 | [M-H]- | C5H6O4 | Lipids and lipid-like molecules |

| PeakID | Title | Adduct | Formula | Superclass | Class |
|--------|--|----------|---------|--------------|----------------------------------|
| 376 | Besonprodil | 401.1374 | [M-H]- | C21H23FN2O3S | Organoheterocyclic compounds |
| 378 | Isosakuranin | 447.1423 | [M-H]- | C22H24O10 | Phenylpropanoids and polyketides |
| 379 | Pyroglutamyl-Isoleucine | 241.1152 | [M-H]- | C11H18N2O4 | Organic acids and derivatives |
| 380 | Oxytetracycline | 459.141 | [M-H]- | C22H24N2O9 | Phenylpropanoids and polyketides |
| 381 | 7-Hydroxymethotrexat | 469.166 | [M-H]- | C20H22N8O6 | Organoheterocyclic compounds |
| 382 | 4,4'-Sulfonylbis[2-(prop-2-en-1-yl)phenol] | 329.0857 | [M-H]- | C18H18O4S | Benzenoids |
| 383 | methyl asterrate | 361.0892 | [M-H]- | C18H18O8 | Benzenoids |
| 385 | Cetirizine | 387.1581 | [M-H]- | C21H25ClN2O3 | Benzenoids |
| 386 | Oxycarboxin | 266.0445 | [M-H]- | C12H13NO4S | Benzenoids |
| 388 | BENZOATE | 121.0271 | [M-H]- | C7H6O2 | Benzenoids |
| 391 | RHODOMYRTOXIN | 427.1726 | [M-H]- | C24H28O7 | Organoheterocyclic compounds |
| 392 | Galocatechin | 305.064 | [M-H]- | C15H14O7 | Phenylpropanoids and polyketides |
| 393 | Betamethasone 21 | 433.1994 | [M-H]- | C24H31FO6 | Lipids and lipid-like molecules |
| 394 | Jasmonic acid | 209.1251 | [M-H]- | C12H18O3 | Lipids and lipid-like molecules |
| 395 | O-Acetylcarnitine | 202.104 | [M-H]- | C9H17NO4 | Lipids and lipid-like molecules |
| 396 | Clobenpropit | 307.0789 | [M-H]- | C14H17ClN4S | Benzenoids |
| 401 | 3-(5-methoxy-2,2-dimethylchromen-8-yl)-3-oxopropanoic acid | 275.0982 | [M-H]- | C15H16O5 | Organoheterocyclic compounds |
| 402 | Methyl Haematommate | 209.0409 | [M-H]- | C10H10O5 | Benzenoids |
| 405 | Flufenamic acid | 280.0596 | [M-H]- | C14H10F3NO2 | Benzenoids |
| 408 | 4-Vinylphenol | 119.047 | [M-H]- | C8H8O | Benzenoids |
| 409 | 2-Hydroxycinnamic acid | 163.0376 | [M-H]- | C9H8O3 | Phenylpropanoids and polyketides |
| 410 | N-Acetyl-L-phenylalanine | 206.0776 | [M-H]- | C11H13NO3 | Organic acids and derivatives |
| 412 | Tuckolide Decarestrictine D | 215.0885 | [M-H]- | C10H16O5 | |
| 414 | Ethopabate | 236.088 | [M-H]- | C12H15NO4 | Benzenoids |
| 416 | 1,4-Cyclohexanedicarboxylic acid | 171.063 | [M-H]- | C8H12O4 | Organic acids and derivatives |
| 417 | 3,7,3',4',5'-Pentahydroxyflavone | 301.0297 | [M-H]- | C15H10O7 | Phenylpropanoids and polyketides |

| PeakID | Title | Adduct | Formula | Superclass | Class |
|--------|--------------------------------------|----------|---------|-------------|---|
| 418 | ferulic acid | 193.0474 | [M-H]- | C10H10O4 | Phenylpropanoids and polyketides |
| 420 | Methyl Jasmonic acid | 223.1411 | [M-H]- | C13H20O3 | Lipids and lipid-like molecules |
| 421 | coumarin-SAHA | 345.148 | [M-H]- | C18H22N2O5 | Phenylpropanoids and polyketides |
| 422 | Methotrexate | 453.17 | [M-H]- | C20H22N8O5 | Organoheterocyclic compounds |
| 423 | Closone butyrate | 477.1834 | [M-H]- | C26H32ClFO5 | |
| 424 | Maltotriose | 503.1671 | [M-H]- | C18H32O16 | Organic oxygen compounds |
| 425 | Azelaic acid | 187.0938 | [M-H]- | C9H16O4 | Lipids and lipid-like molecules |
| 426 | 1,3,7-Trimethyluric acid | 209.0745 | [M-H]- | C8H10N4O3 | Organoheterocyclic compounds |
| 427 | 15-keto Fluprostenol isopropyl ester | 497.2127 | [M-H]- | C26H33F3O6 | |
| 429 | Etomidate | 243.1191 | [M-H]- | C14H16N2O2 | Organoheterocyclic compounds |
| 430 | Luteolin | 285.0345 | [M-H]- | C15H10O6 | Phenylpropanoids and polyketides |
| 432 | Carapin | 467.2048 | [M-H]- | C27H32O7 | Lipids and lipid-like molecules |
| 435 | FKGK 11 | 279.0847 | [M-H]- | C13H13F5O | Benzenoids |
| 439 | 4-hydroxynonenoic acid | 171.0993 | [M-H]- | C9H16O3 | |
| 446 | -Mevalonic acid 5-phosphate | 227.0301 | [M-H]- | C6H13O7P | |
| 449 | sinapaldehyde glucoside | 369.1153 | [M-H]- | C17H22O9 | Organic oxygen compounds |
| 454 | Sebacic acid | 201.1083 | [M-H]- | C10H18O4 | Lipids and lipid-like molecules |
| 455 | Thiopental | 241.1034 | [M-H]- | C11H18N2O2S | Organoheterocyclic compounds |
| 457 | Illicic acid | 251.1705 | [M-H]- | C15H24O3 | Lipids and lipid-like molecules |
| 461 | (-)-12-hydroxyjasmonic acid | 225.1084 | [M-H]- | C12H18O4 | Lipids and lipid-like molecules |
| 464 | 2',3'-Dideoxyinosine | 235.0789 | [M-H]- | C10H12N4O3 | Nucleosides, nucleotides, and analogues |
| 468 | Catechin | 289.0636 | [M-H]- | C15H14O6 | Phenylpropanoids and polyketides |
| 469 | Farrerol | 299.0931 | [M-H]- | C17H16O5 | Phenylpropanoids and polyketides |
| 474 | syringin | 371.1308 | [M-H]- | C17H24O9 | Organic oxygen compounds |

| PeakID | Title | Adduct | Formula | Superclass | Class |
|--------|---|----------|---------|--------------|---|
| 480 | Undecanedioic acid | 215.1254 | [M-H]- | C11H20O4 | Lipids and lipid-like molecules |
| 481 | (10E,15Z)-9,12,13-trihydroxyoctadeca-10,15-dienoic acid | 327.2109 | [M-H]- | C18H32O5 | Lipids and lipid-like molecules |
| 482 | Tetranor-12(R)-HETE | 265.1856 | [M-H]- | C16H26O3 | |
| 487 | Virensic acid | 357.0548 | [M-H]- | C18H14O8 | Phenylpropanoids and polyketides |
| 489 | (Z)-5,8,11-trihydroxyoctadec-9-enoic acid | 329.2272 | [M-H]- | C18H34O5 | Lipids and lipid-like molecules |
| 491 | gmelinol | 401.0805 | [M-H]- | C22H26O7 | Lignans, neolignans and related compounds |
| 492 | Oenin | 491.1118 | [M-H]- | C23H24O12 | Phenylpropanoids and polyketides |
| 498 | Glucoibarin | 478.0913 | [M-H]- | C15H29NO10S3 | Organic oxygen compounds |
| 507 | Picrotin | 309.0881 | [M-H]- | C15H18O7 | Organoheterocyclic compounds |
| 518 | e-64 | 356.0068 | [M-H]- | C15H27N5O5 | Organoheterocyclic compounds |
| 527 | Monoisobutyl phthalate | 221.0781 | [M-H]- | C12H14O4 | Benzenoids |
| 528 | ORTHOTHYBOTINIC ACID | 193.0833 | [M-H]- | C11H14O3 | Lipids and lipid-like molecules |
| 529 | EPIAFZELECHIN TRIMETHYL ETHER | 315.117 | [M-H]- | C18H20O5 | Phenylpropanoids and polyketides |
| 530 | CEHC | 249.1084 | [M-H]- | C14H18O4 | |
| 531 | Methyl jasmonate | 223.1291 | [M-H]- | C13H20O3 | Lipids and lipid-like molecules |
| 532 | 1,11-Undecanedicarboxylic acid | 243.1553 | [M-H]- | C13H24O4 | Lipids and lipid-like molecules |
| 537 | 7-(2-aminophenyl)heptanoic acid | 220.1425 | [M-H]- | C13H19NO2 | |
| 538 | 3-(8-hydroxyoctyl)phenol | 221.1502 | [M-H]- | C14H22O2 | Lipids and lipid-like molecules |
| 539 | N-acetyl-O-methyltyrosine | 236.1012 | [M-H]- | C12H15NO4 | Organic acids and derivatives |
| 540 | [6]-Gingerol | 293.1702 | [M-H]- | C17H26O4 | Benzenoids |
| 542 | Thyrotropin releasing hormone | 361.1555 | [M-H]- | C16H22N6O4 | Organic acids and derivatives |
| 543 | AN-7 | 449.1421 | [M-H]- | C19H34N2O2S4 | |
| 545 | C12-AE1S (TENTATIVE) | 309.1652 | [M-H]- | C14H30O5S | Organic acids and derivatives |

| PeakID | Title | Adduct | Formula | Superclass | Class |
|--------|--|----------|---------|--------------|----------------------------------|
| 546 | 13S-HpOTrE(gamma) | 309.2007 | [M-H]- | C18H30O4 | |
| 547 | Chrysanthemic Acid, Ethyl Ester | 195.1352 | [M-H]- | C12H20O2 | Lipids and lipid-like molecules |
| 548 | Anserine | 239.1243 | [M-H]- | C10H16N4O3 | Organic acids and derivatives |
| 553 | Prostaglandin D2-d9 | 360.2696 | [M-H]- | C20H23D9O5 | Lipids and lipid-like molecules |
| 558 | N-Methyltyrosine | 194.0782 | [M-H]- | C10H13NO3 | Organic acids and derivatives |
| 559 | (9Z,12E)-15,16-dihydroxyoctadeca-9,12-dienoic acid | 311.2168 | [M-H]- | C18H32O4 | Lipids and lipid-like molecules |
| 562 | 12-OPDA | 291.1901 | [M-H]- | C18H28O3 | Lipids and lipid-like molecules |
| 566 | Lacosamide | 249.1302 | [M-H]- | C13H18N2O3 | Organic acids and derivatives |
| 567 | PLATYPHYLLENONE | 295.135 | [M-H]- | C19H20O3 | Phenylpropanoids and polyketides |
| 570 | 9,10-DiHOME | 313.2316 | [M-H]- | C18H34O4 | |
| 574 | Curcumenol | 233.1492 | [M-H]- | C15H22O2 | Lipids and lipid-like molecules |
| 576 | Ricinoleic acid | 297.2362 | [M-H]- | C18H34O3 | Lipids and lipid-like molecules |
| 578 | 9-hydroxy-10,12-octadecadienoic acid | 295.2224 | [M-H]- | C18H32O3 | Lipids and lipid-like molecules |
| 579 | 2,6-Di-tert-butyl-4-nitrophenol | 250.14 | [M-H]- | C14H21NO3 | Benzenoids |
| 580 | OSELTAMIVIR PHOSPHATE | 311.1945 | [M-H]- | C16H28N2O4 | Organic acids and derivatives |
| 581 | Lauryl sulfate | 265.1429 | [M-H]- | C12H26O4S | Organic acids and derivatives |
| 582 | 3,5-Dicarbethoxy-1,4-dihydrocollidine | 266.1466 | [M-H]- | C14H21NO4 | |
| 583 | Iso-Olomoucine | 297.1474 | [M-H]- | C15H18N6O | Organoheterocyclic compounds |
| 586 | hirsutanone | 327.1202 | [M-H]- | C19H20O5 | Phenylpropanoids and polyketides |
| 593 | Pseudoyohimbine | 353.1948 | [M-H]- | C21H26N2O3 | Alkaloids and derivatives |
| 596 | Misoprostol | 367.2574 | [M-H]- | C21H36O5 | Lipids and lipid-like molecules |
| 597 | [12]-Gingerol | 377.265 | [M-H]- | C23H38O4 | |
| 598 | HYCANTHONE | 355.1517 | [M-H]- | C20H24N2O2S | Organoheterocyclic compounds |
| 658 | Chlorpyrifos-methyl | 319.8836 | [M-H]- | C7H7Cl3NO3PS | Organic acids and derivatives |

