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Supplementary Information

Facile Synthesis of Magnetic Graphene and Carbon Nanotubes Composites as a Novel Matrix and Adsorbent for Enrichment and Detection of Small Molecules by MALDI-TOF MS

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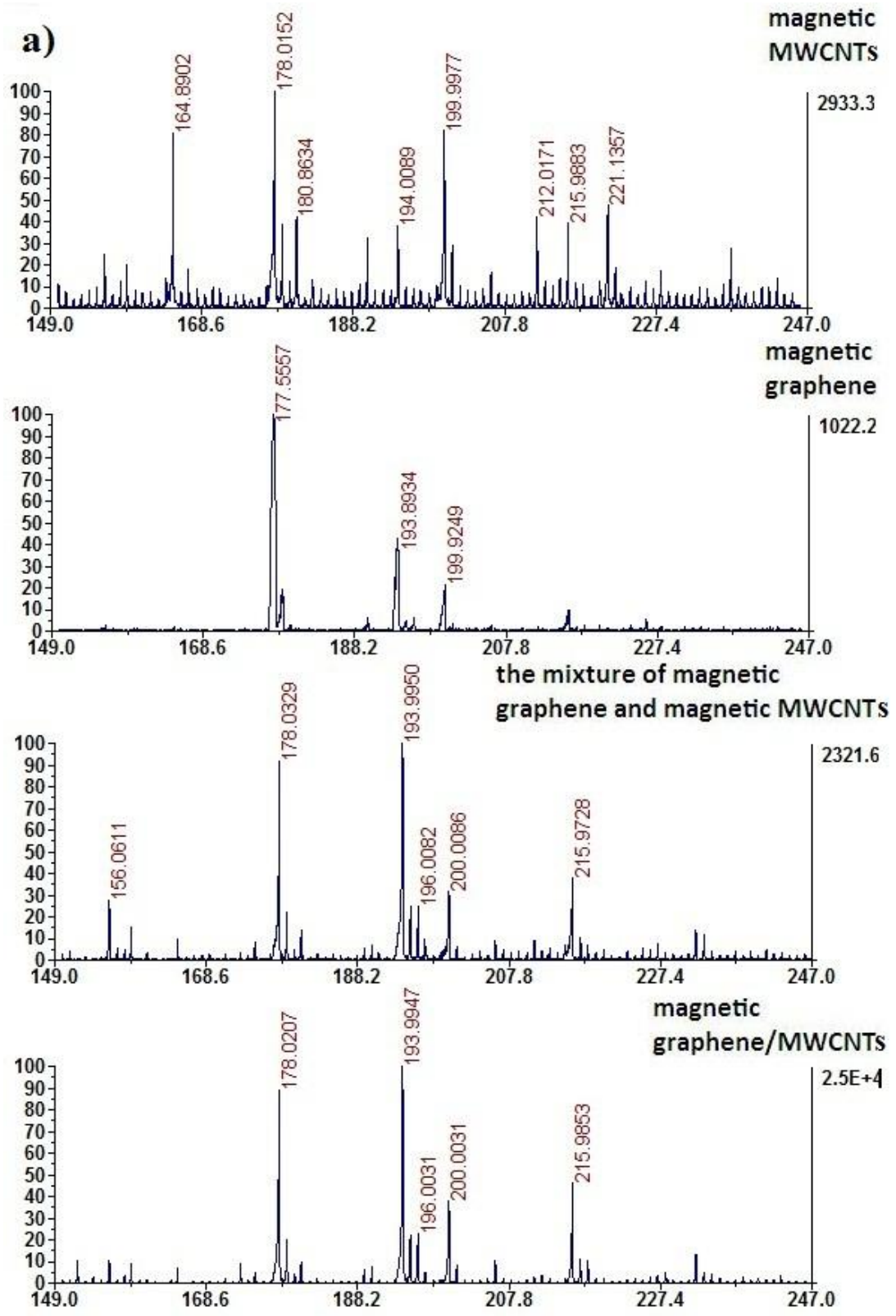

Figure S1. The mass spectra of small molecule of histidine (m/z = 178 $[M+Na]^+$, m/z = 194 $[M+K]^+$) analyzed by MALDI-TOF-MS with magnetic graphene, magnetic MWCNTs, the mixture of magnetic graphene and magnetic MWCNTs and magnetic graphene/MWCNTs composites as a matrix, respectively.

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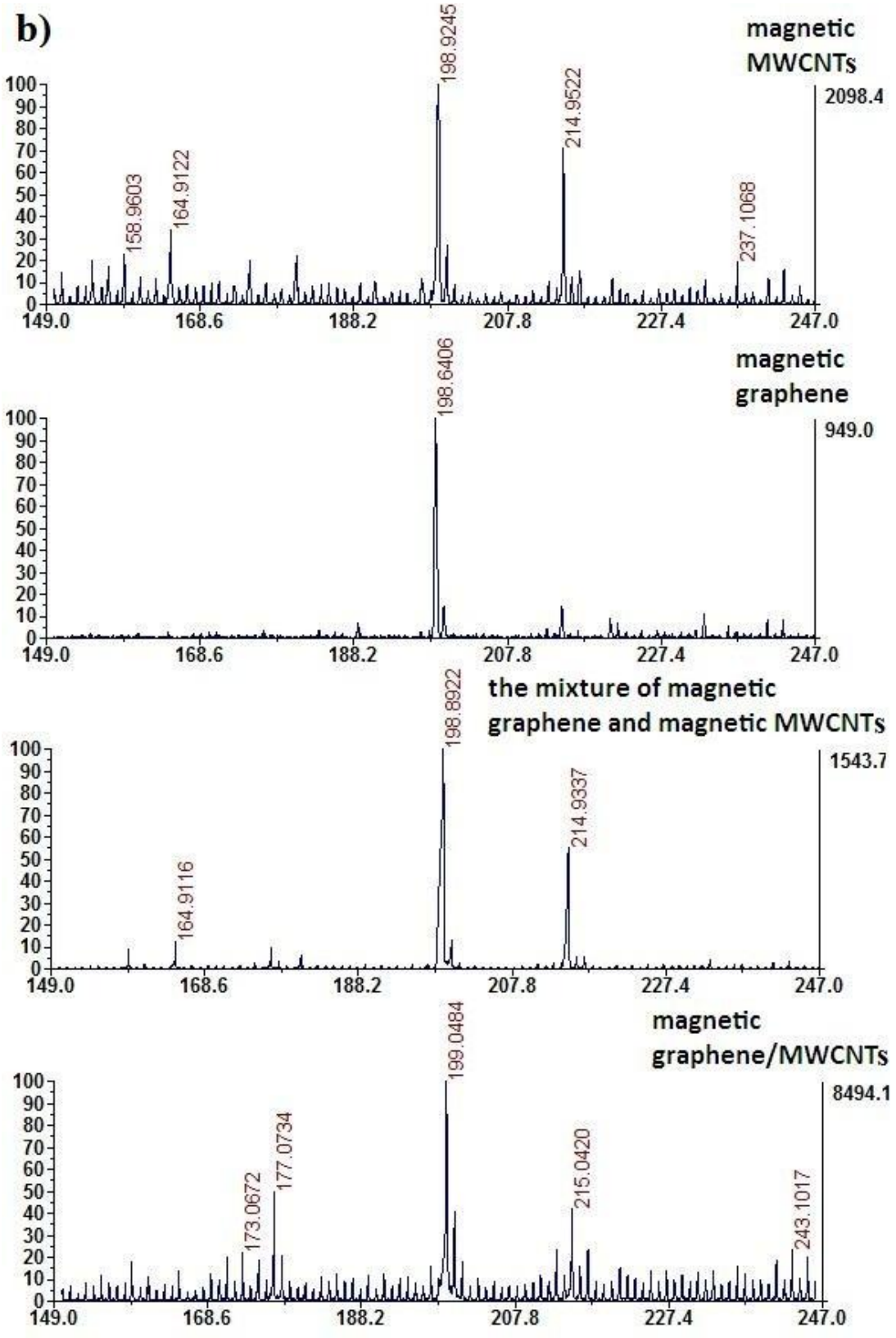

Figure S2. The mass spectra of cotinine (m/z = 199 $[M+Na]^+$, m/z = 215 $[M+K]^+$)analyzed by MALDI-TOF-MS with magnetic graphene, magnetic MWCNTs, the mixture of magnetic graphene and magnetic MWCNTs and magnetic graphene/MWCNTs composites as a matrix, respectively.

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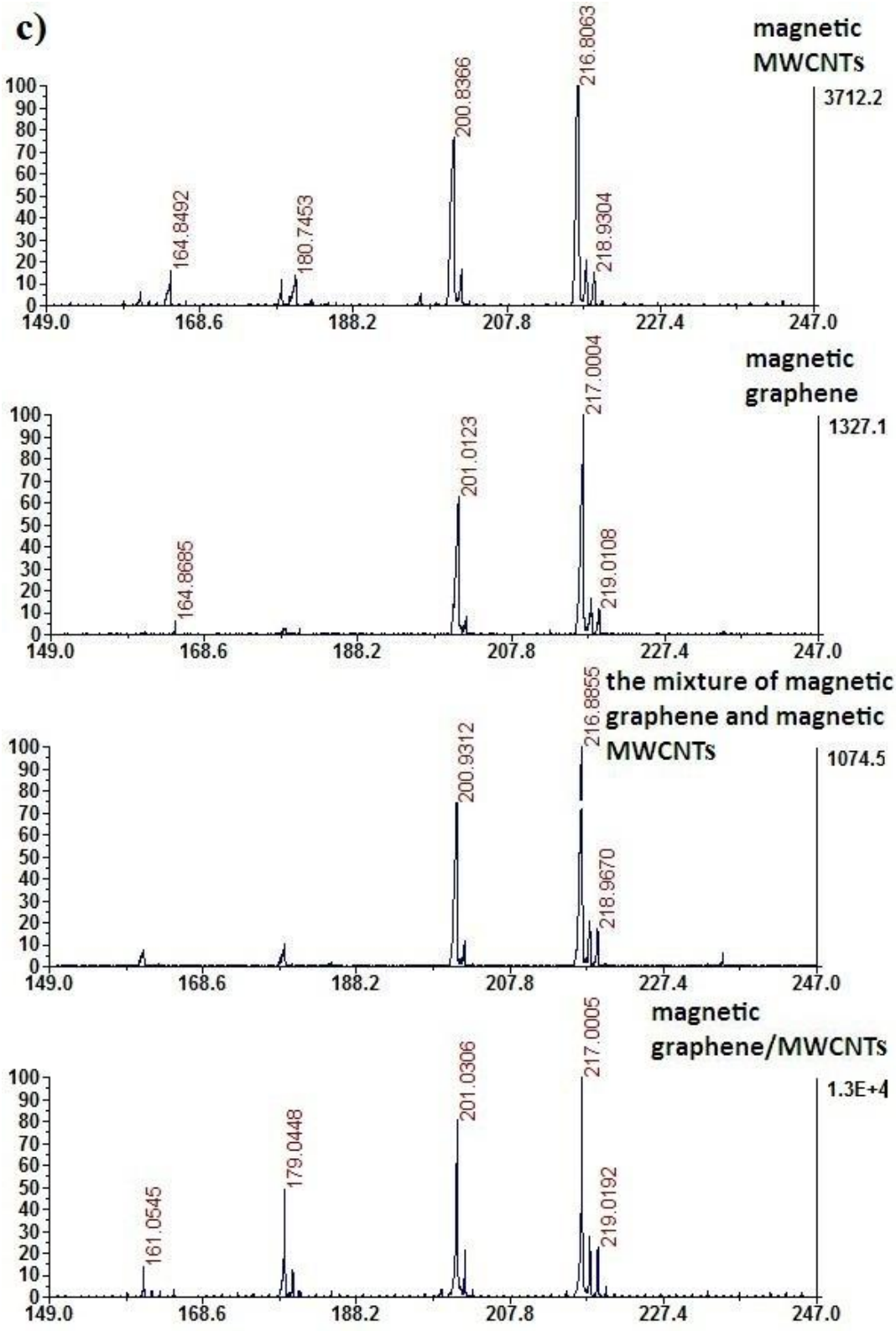

Figure S3. The mass spectra of nicotine nitrogen oxides (m/z = 201 $[M+Na]^+$, m/z = 217 $[M+K]^+$) analyzed by MALDI-TOF-MS with magnetic graphene, magnetic MWCNTs, the mixture of magnetic graphene and magnetic MWCNTs and magnetic graphene/MWCNTs composites as a matrix respectively.

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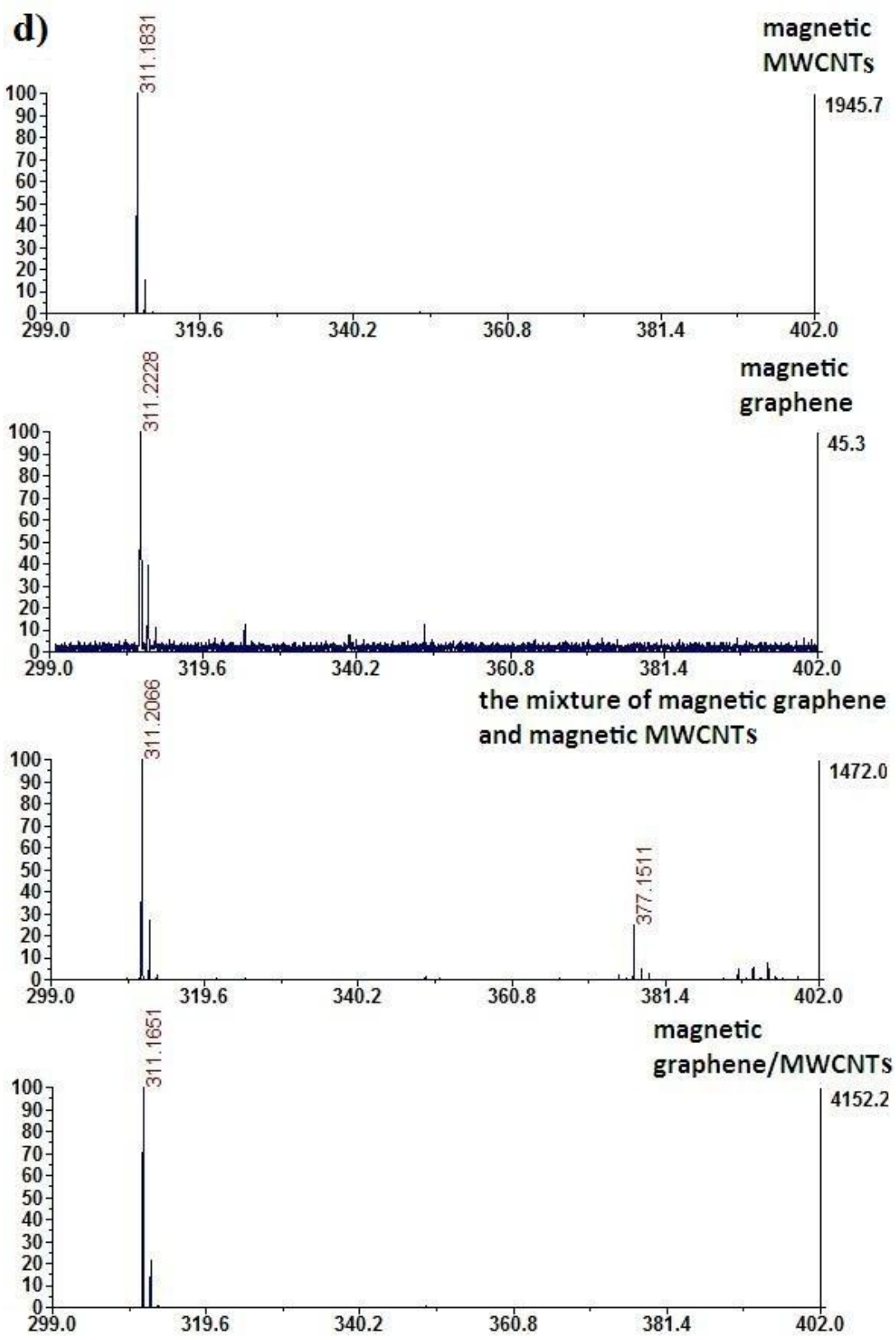

Figure S4. The mass spectra of arachidic acid (m/z = 311 $[M-H]^-$) analyzed by MALDI-TOF-MS with magnetic graphene, magnetic MWCNTs, the mixture of magnetic graphene and magnetic MWCNTs and magnetic graphene/MWCNTs composites as a matrix respectively.

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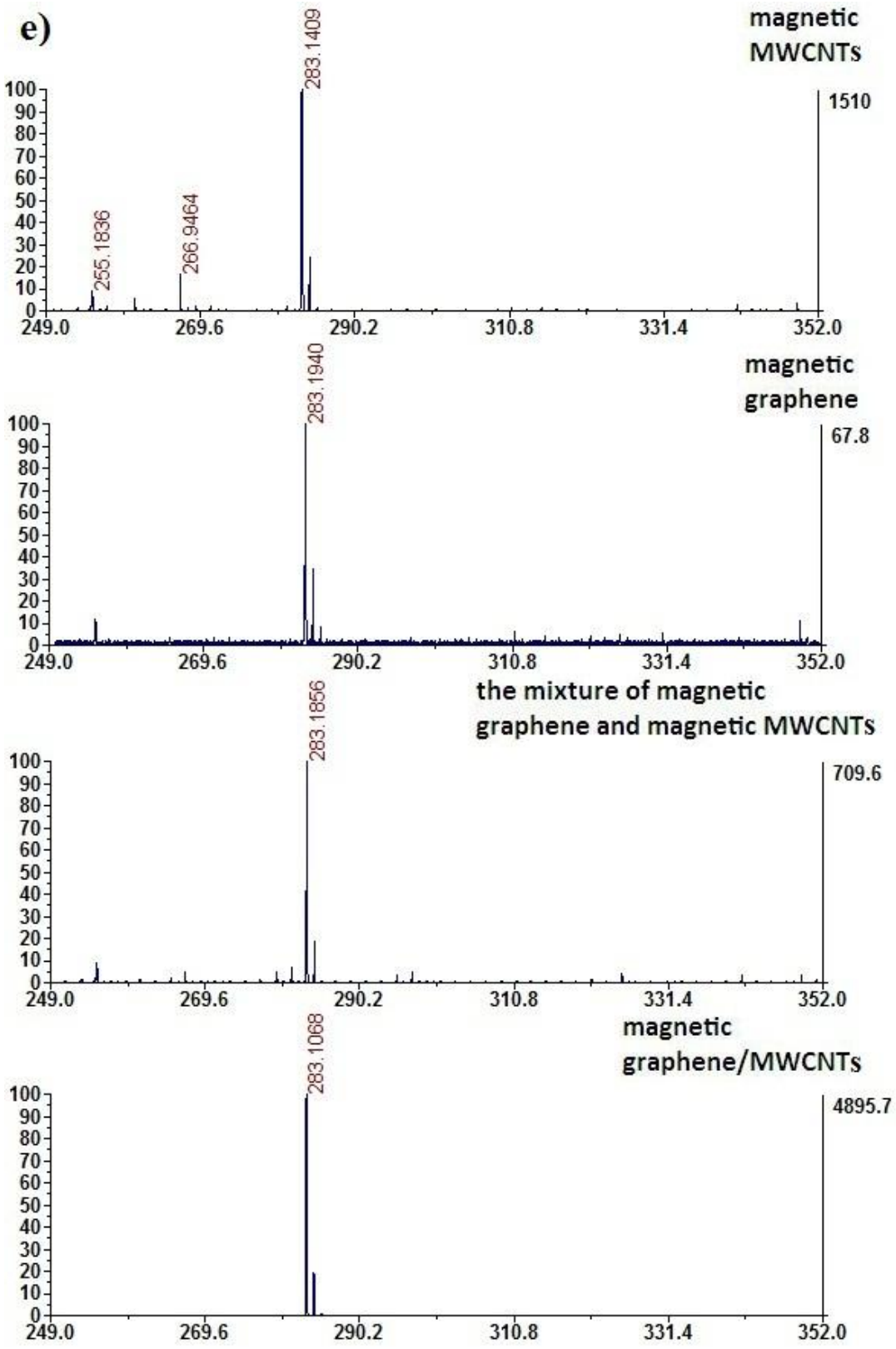

Figure S5. The mass spectra of stearic acid (m/z = 283 $[M-H]^-$) analyzed by MALDI-TOF-MS with magnetic graphene , magnetic MWCNTs, the mixture of magnetic graphene and magnetic MWCNTs and magnetic graphene/MWCNTs composites as a matrix respectively.

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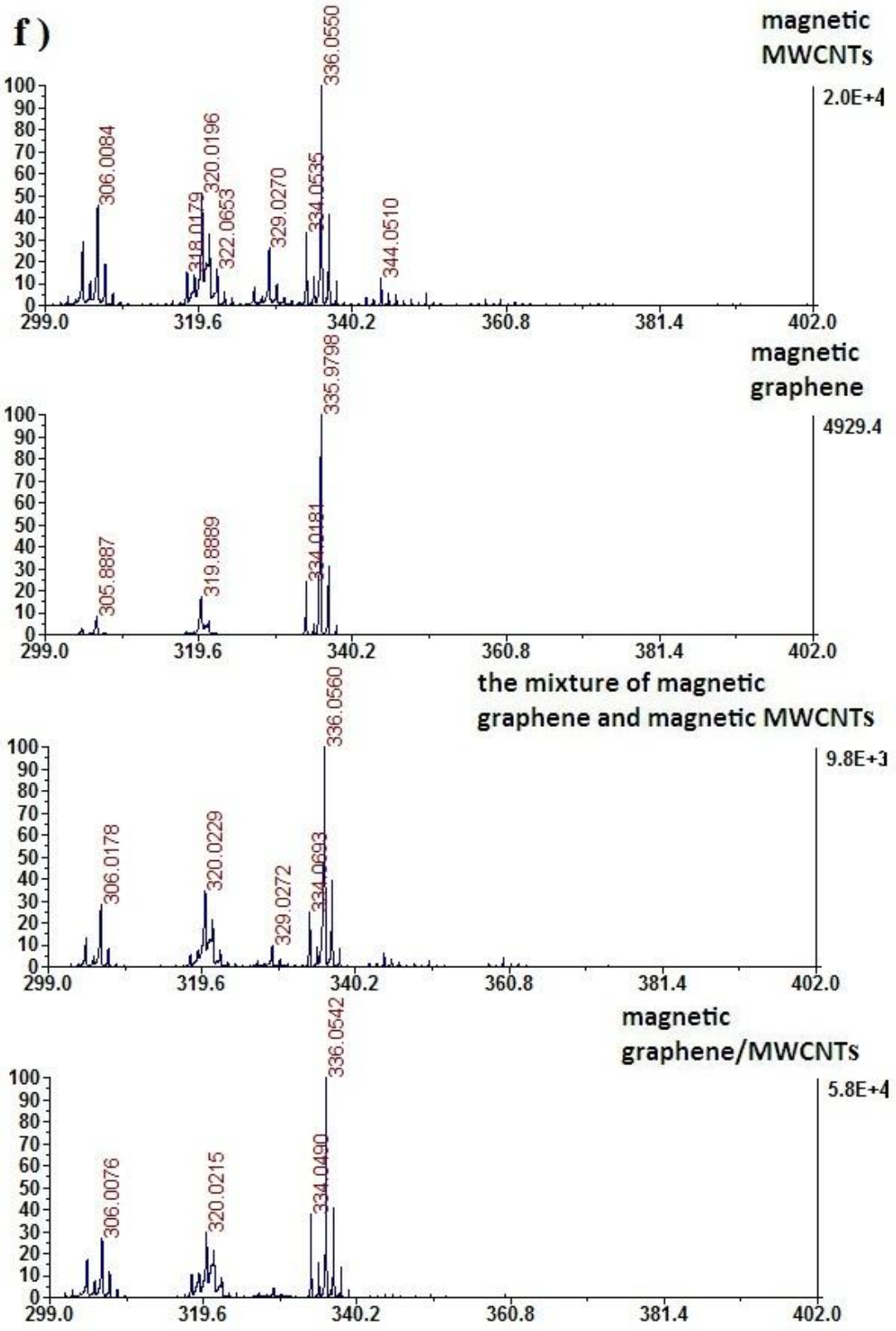

Figure S6. The mass spectra of berberine hydrochloride (m/z = 336 [M]) analyzed by MALDI-TOF-MS with magnetic graphene, magnetic MWCNTs, the mixture of magnetic graphene and magnetic MWCNTs and magnetic graphene/MWCNTs composites as a matrix respectively.

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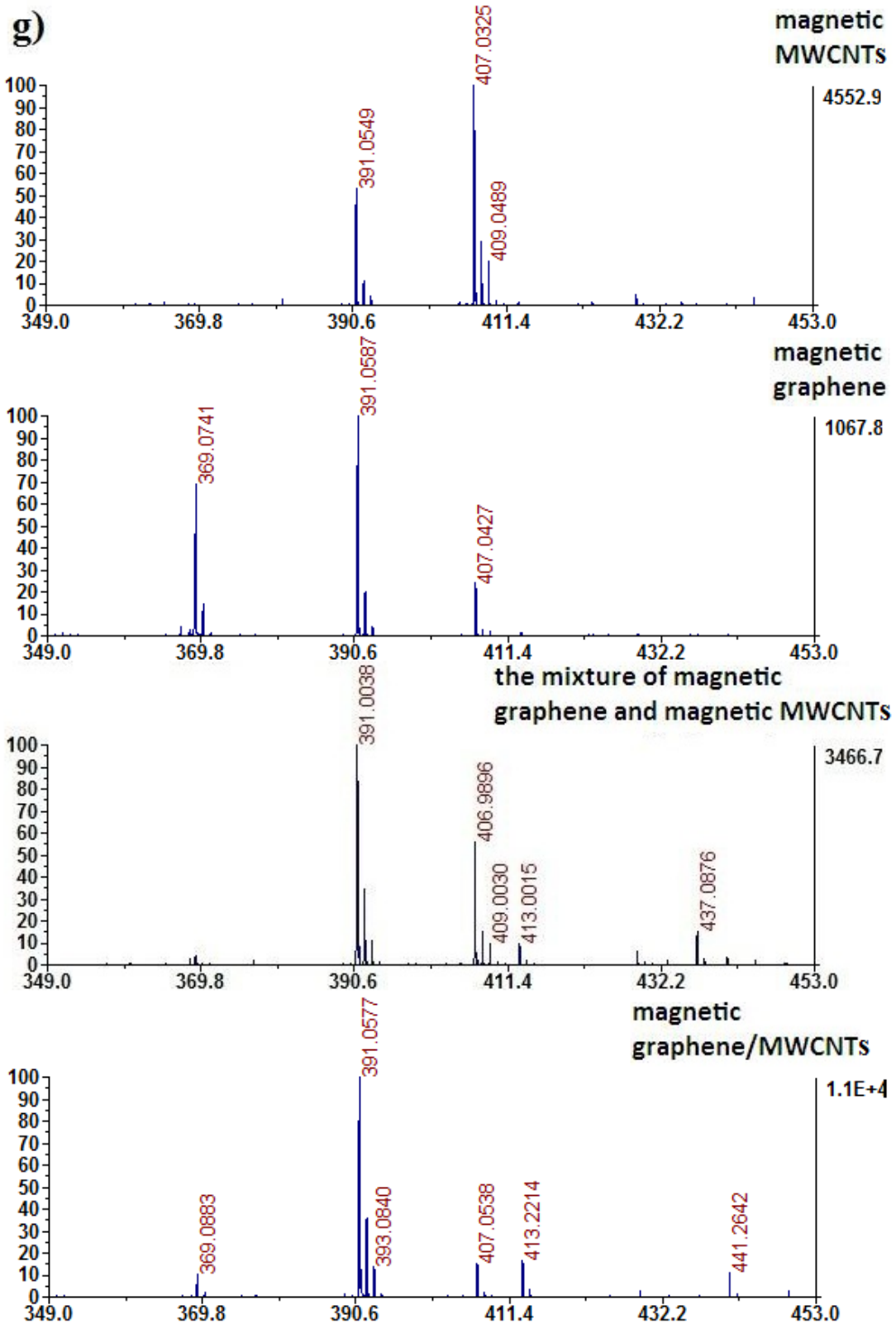

Figure S7. The mass spectra of curcumin (m/z = 369 $[M+H]^+$, m/z = 391 $[M+Na]^+$, m/z = 407 $[M+K]^+$) analyzed by MALDI-TOF-MS with magnetic graphene, magnetic MWCNTs, the mixture of magnetic graphene and magnetic MWCNTs and magnetic graphene/MWCNTs composites as a matrix respectively.

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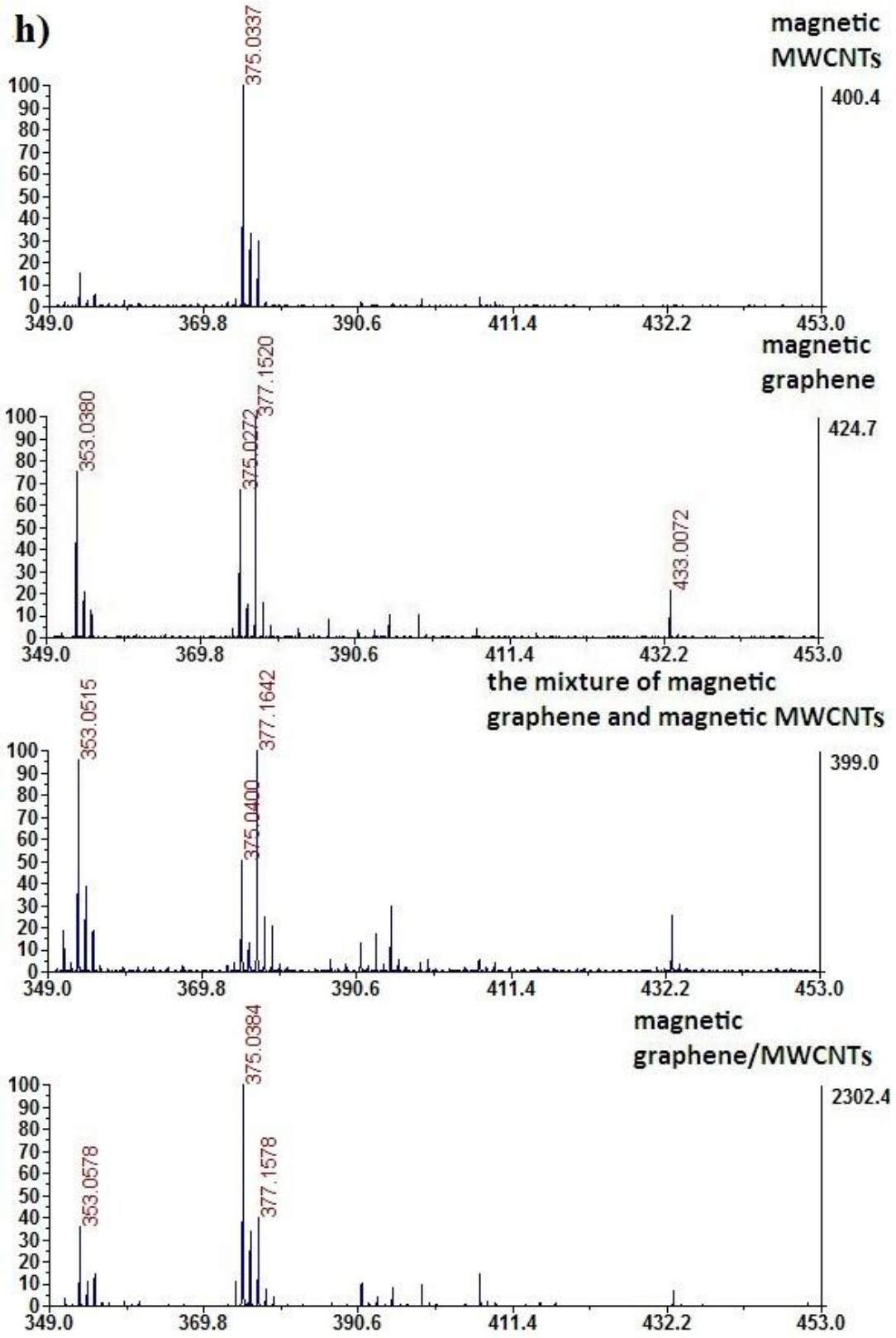

Figure S8. The mass spectra of chlorogenic acid (m/z = 353 $[M - H]^-$, m/z = 375 $[M-H+Na]^+$) analyzed by MALDI-TOF-MS with magnetic graphene, magnetic MWCNTs, the mixture of magnetic graphene and magnetic MWCNTs and magnetic graphene/MWCNTs composites as a matrix respectively.

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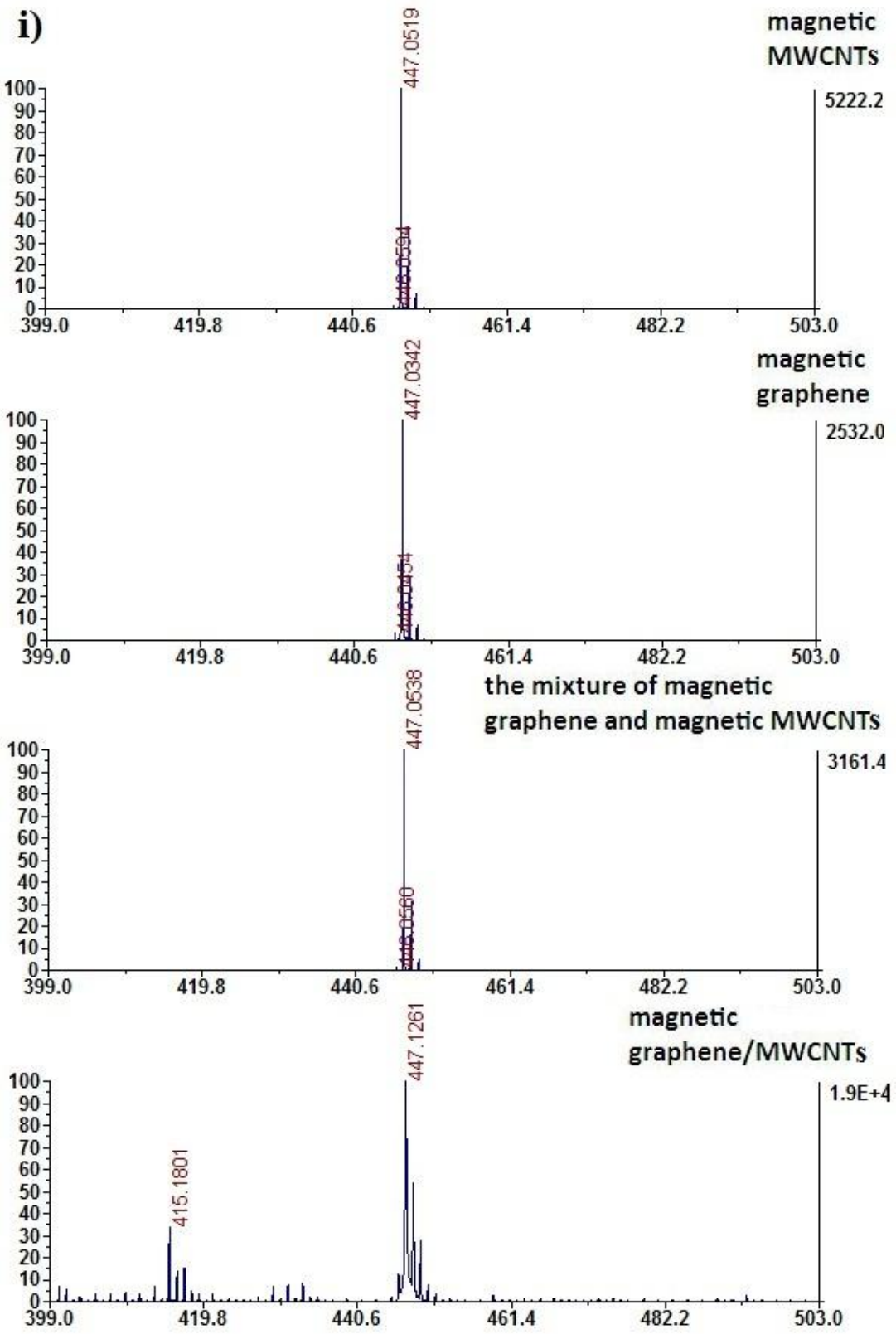

Figure S9. The mass spectra of luteoloside (m/z = 447 $[M-H]^-$) analyzed by MALDI-TOF-MS with magnetic graphene, magnetic MWCNTs, the mixture of magnetic graphene and magnetic MWCNTs and magnetic graphene/MWCNTs composites as a matrix respectively.

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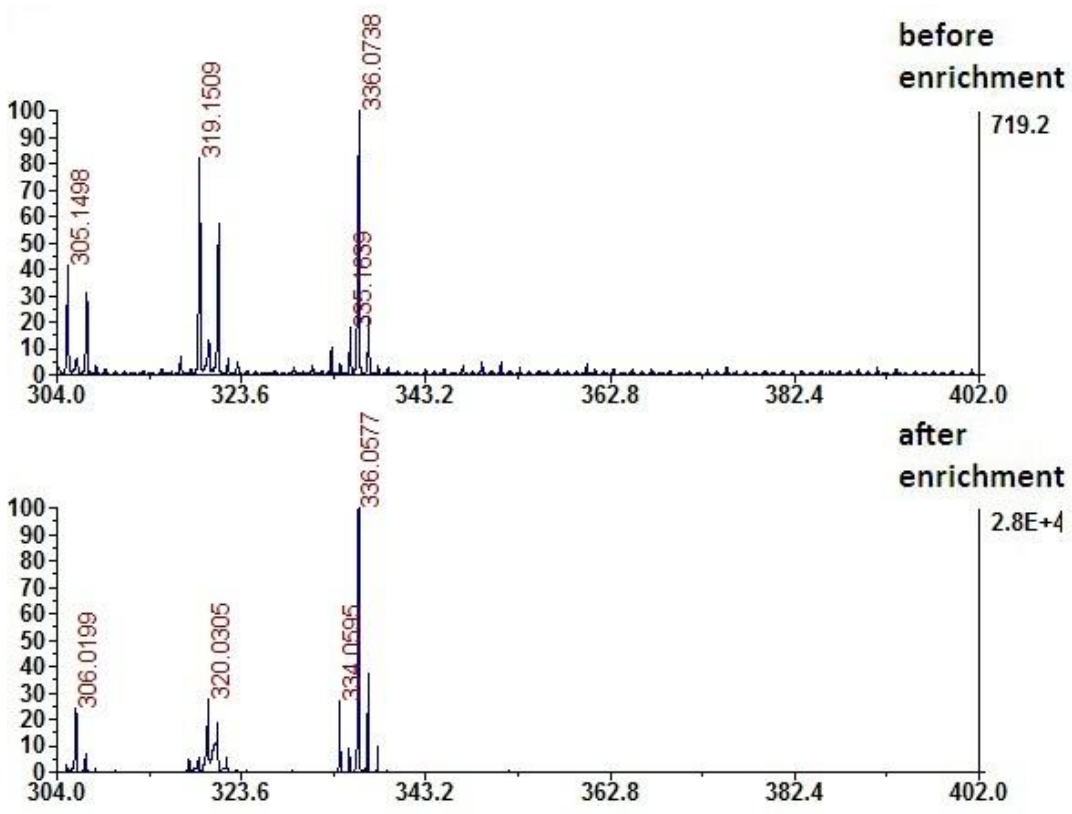

Figure S10. The mass spectra of berberine hydrochloride (m/z = 336 [M]) analyzed by MALDI-TOF-MS with magnetic graphene/MWCNTs composites as adsorbents.

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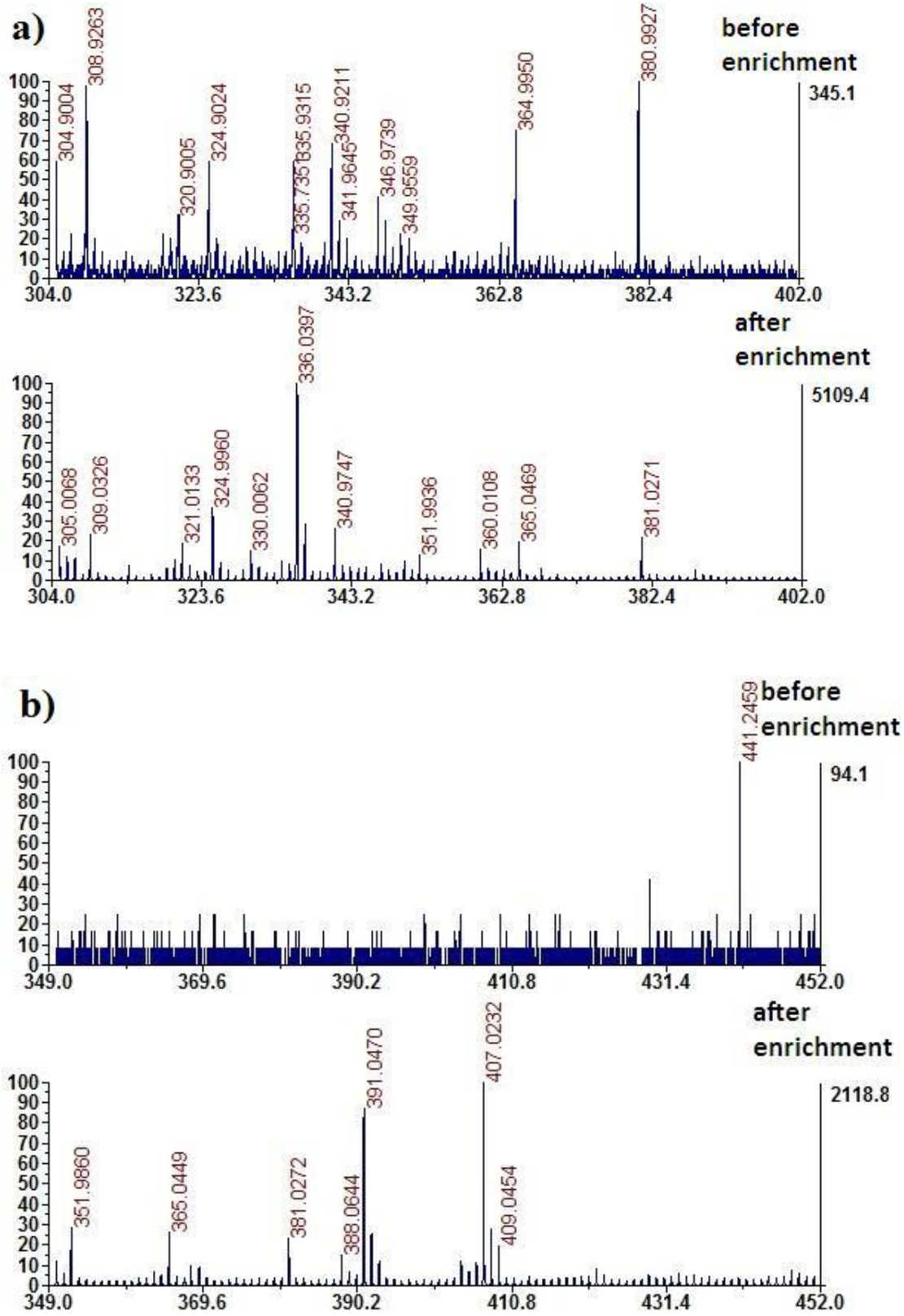

Figure S11. The mass spectra of (a) berberine hydrochloride (m/z = 336 [M] and (b) curcumin (m/z = 369 $[M+H]^+$, m/z = 391 $[M+Na]^+$, m/z = 407 $[M+K]^+$) analyzed by MALDI-TOF-MS with magnetic graphene/MWCNT composites as adsorbents in urine samples.