

## Supplemental Materials

for

### Identification of auxin metabolites in Brassicaceae by ultra-pressure liquid chromatography coupled with high resolution mass spectrometry

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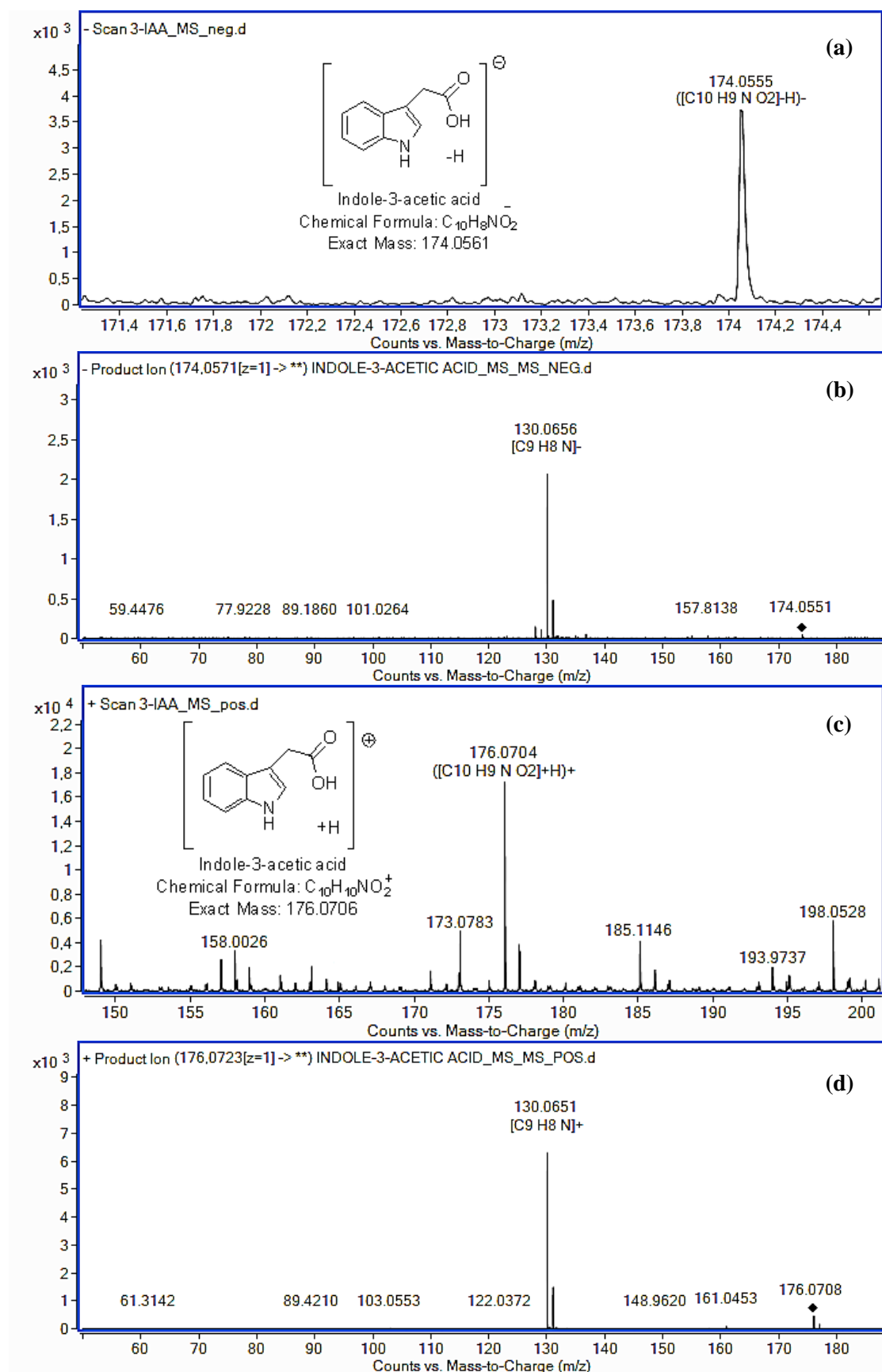
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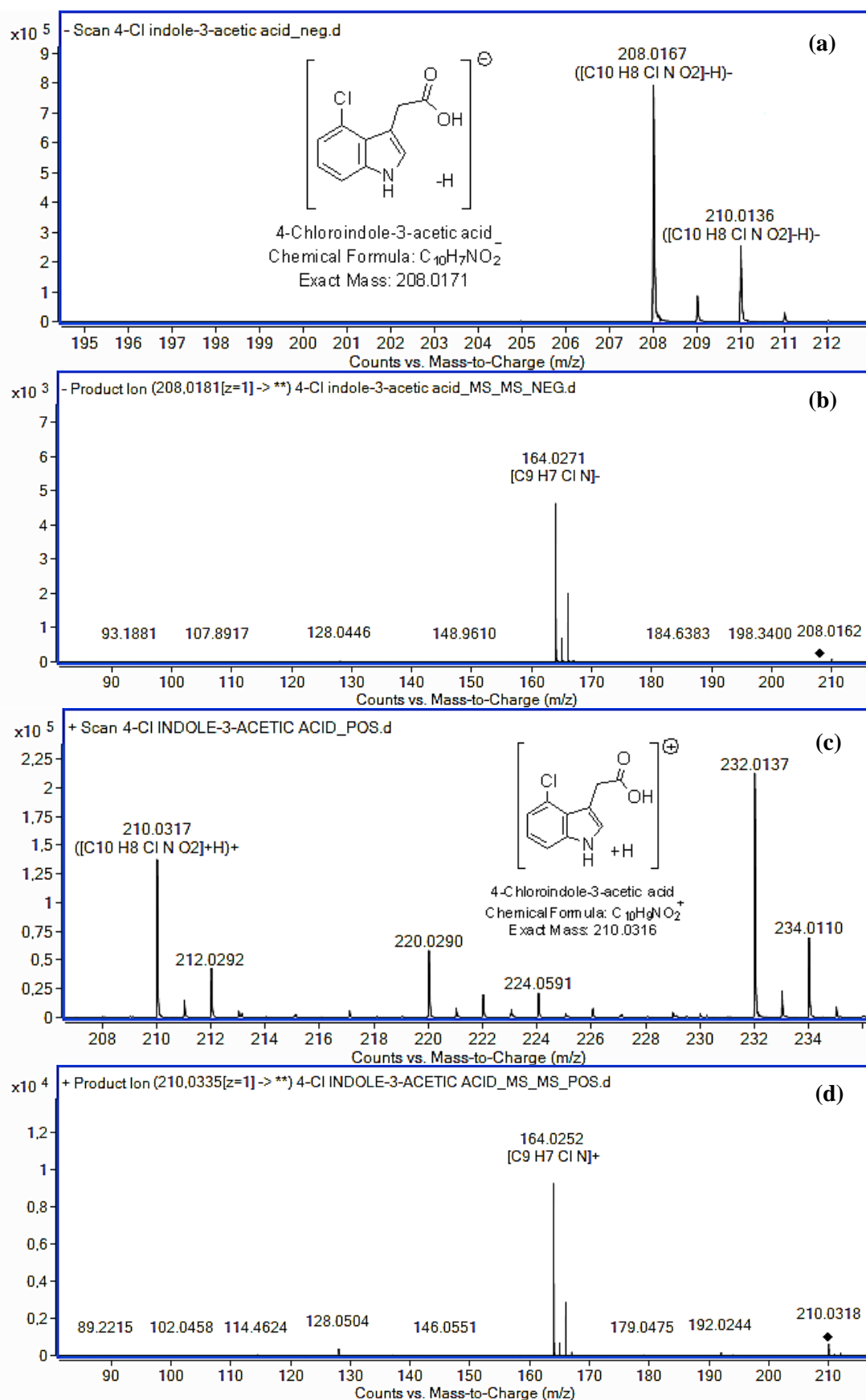
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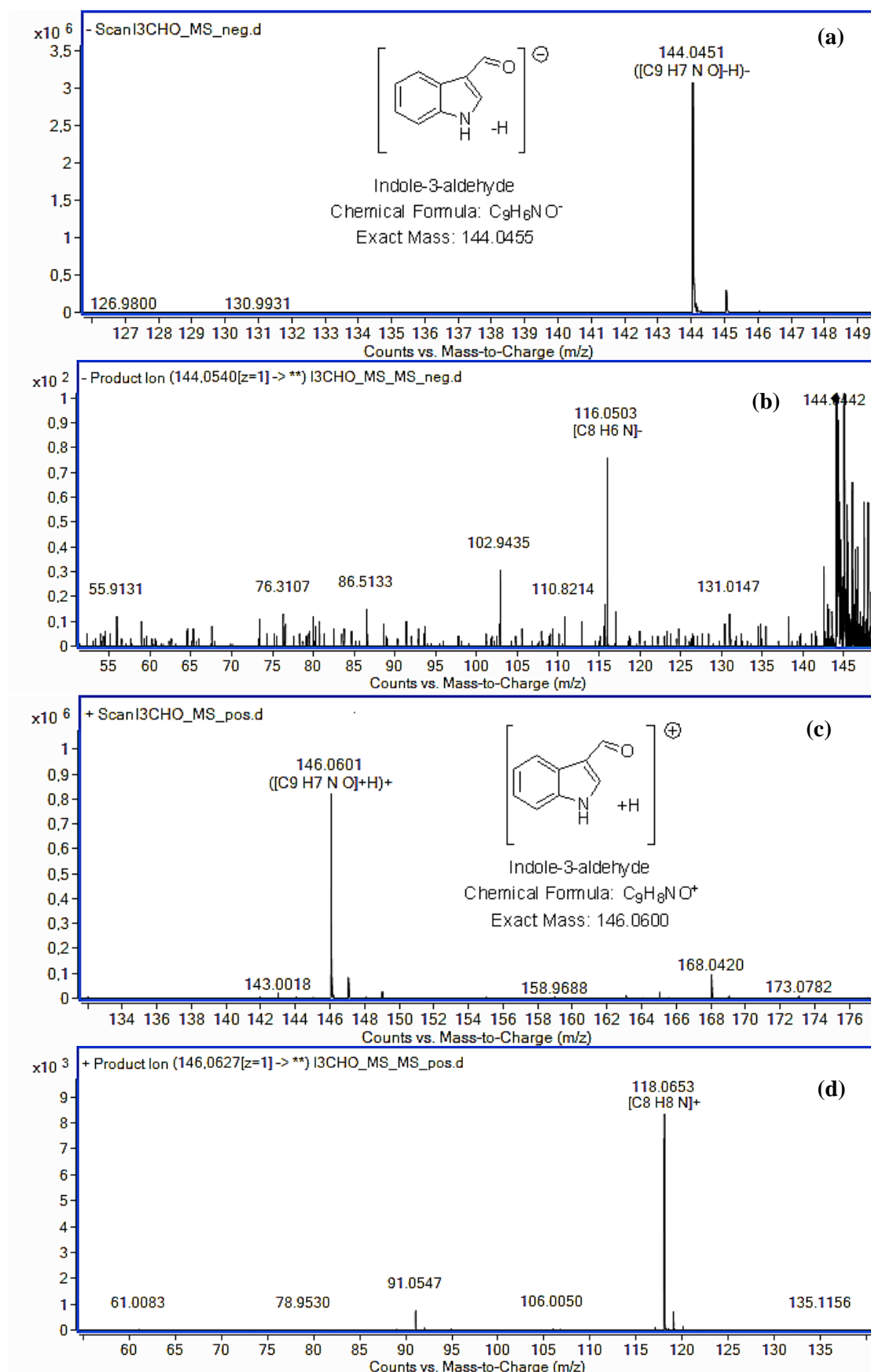
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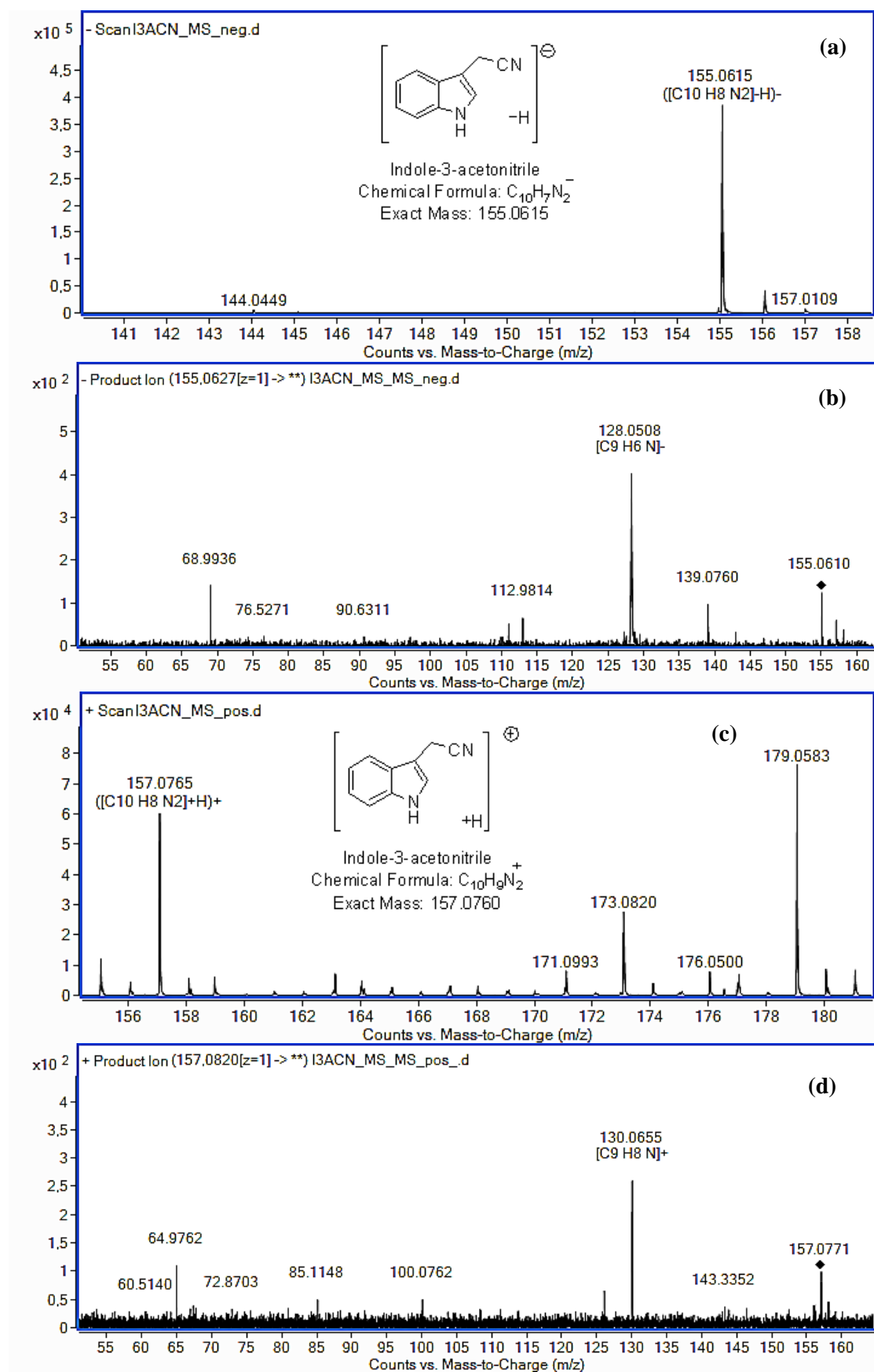
**Fig. S1** Full scan (a) and MS/MS spectra (b) of indole-3-acetic acid under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetic acid under positive ESI mode



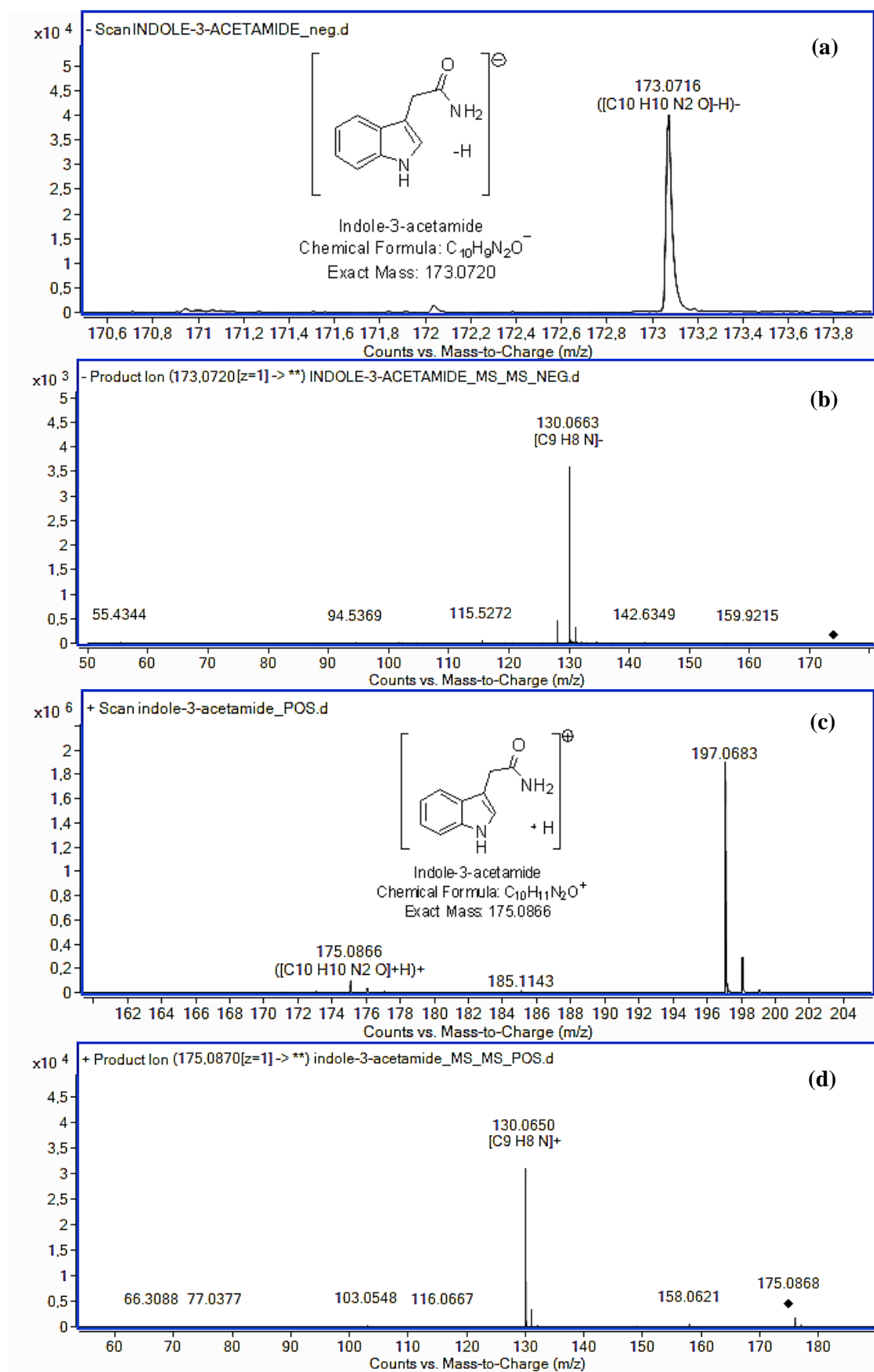
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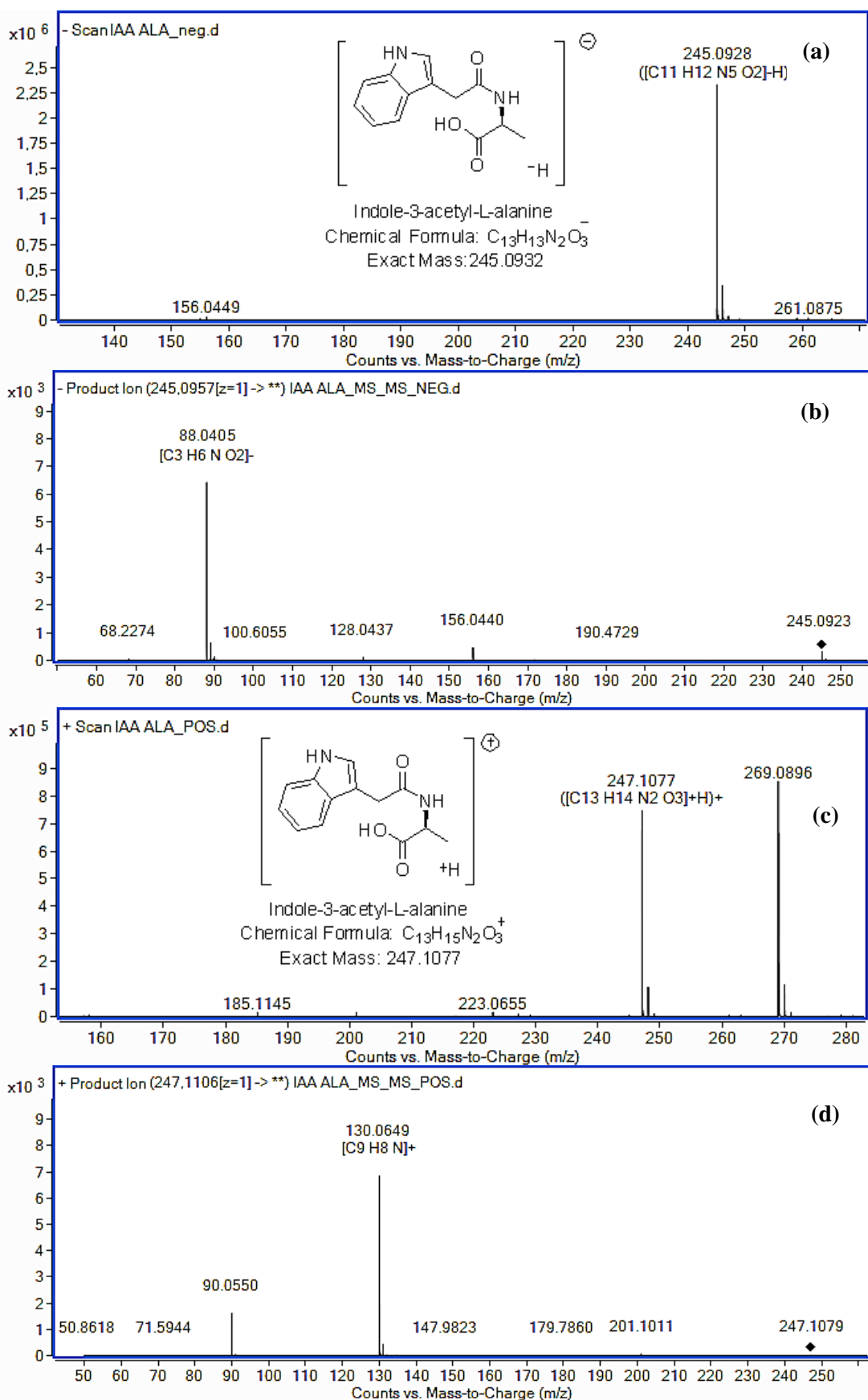


**Fig. S4** Full scan (a) and MS/MS spectra (b) of indole-3-acetonitrile under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetonitrile under positive ESI mode

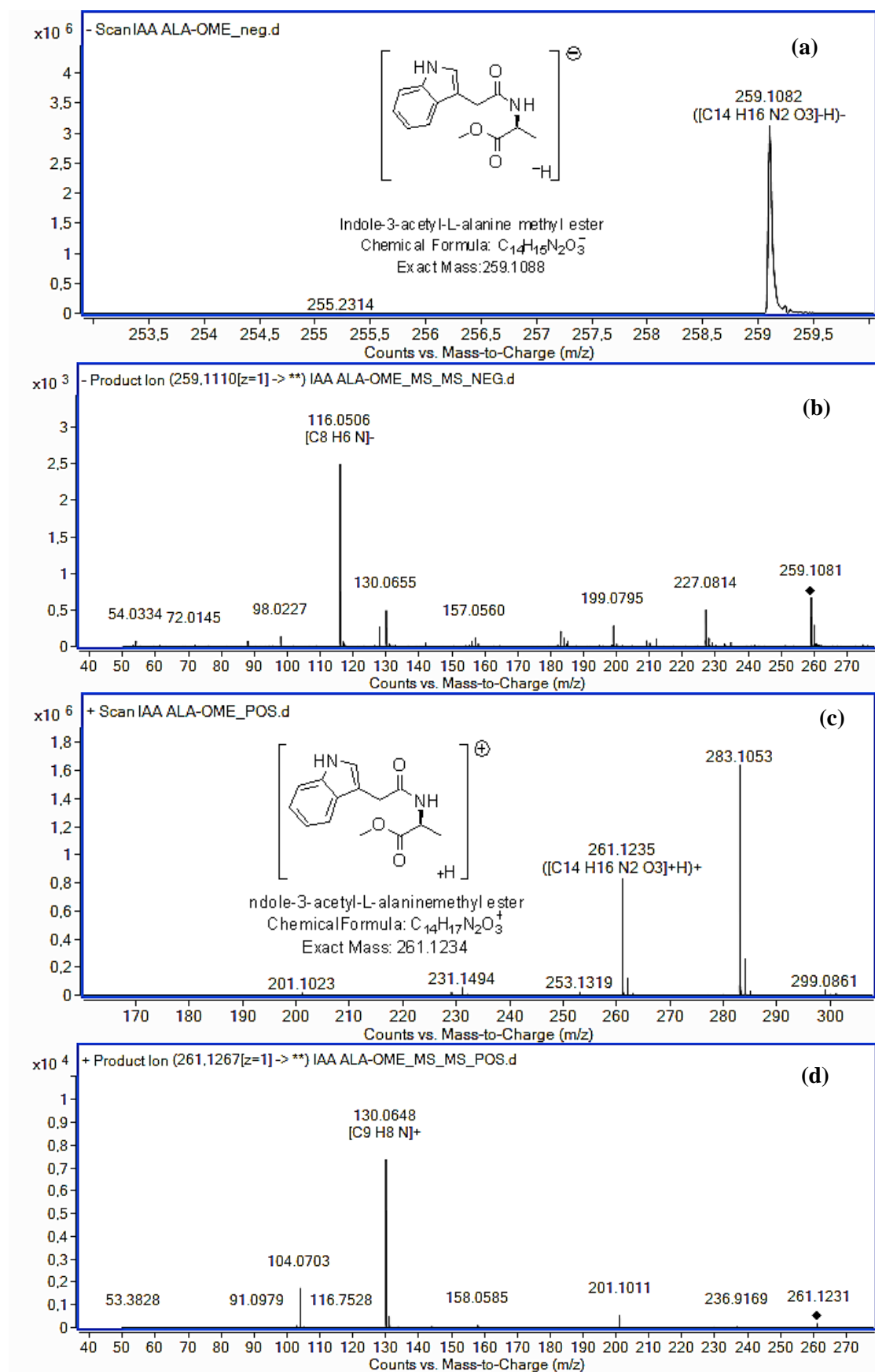


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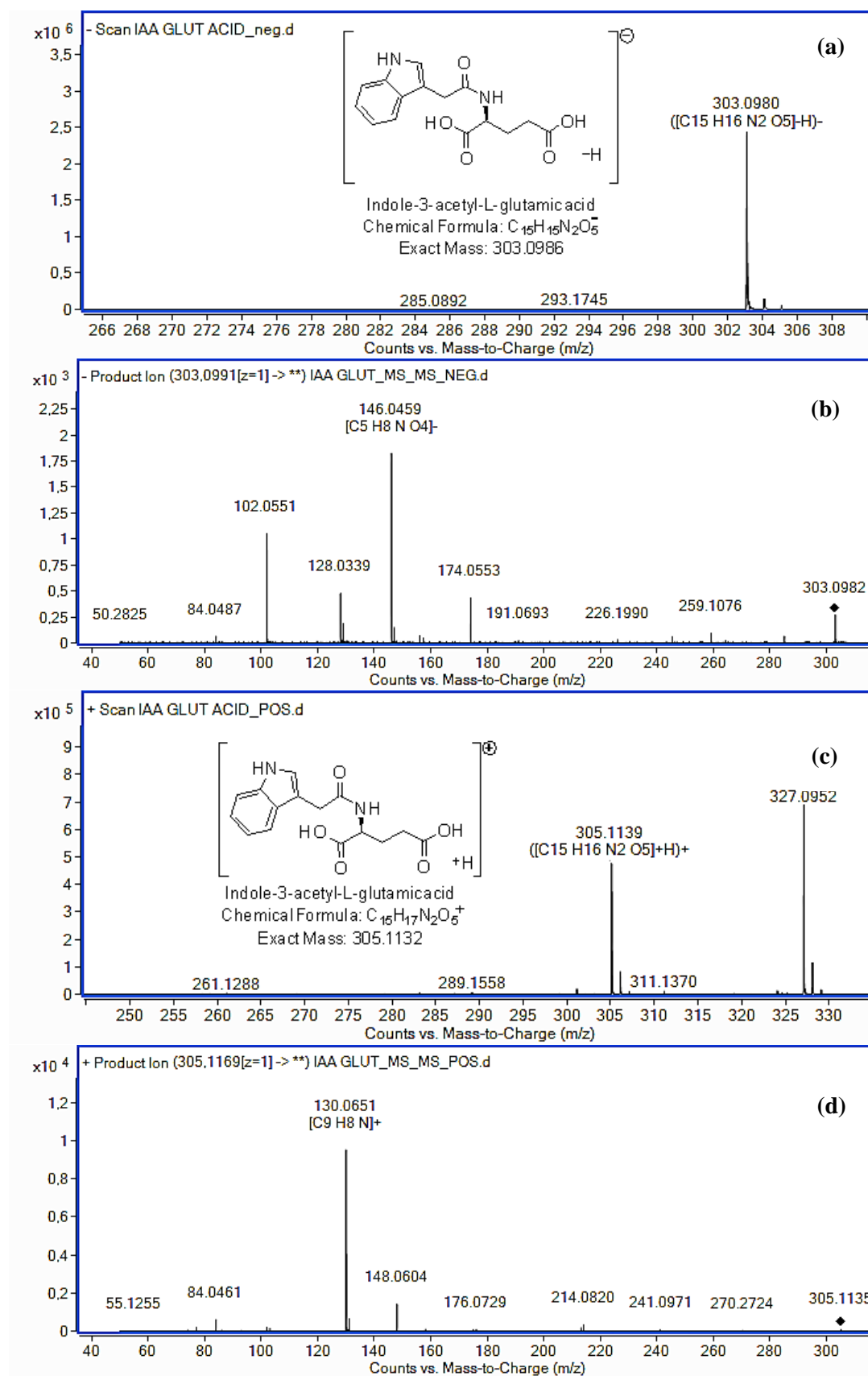




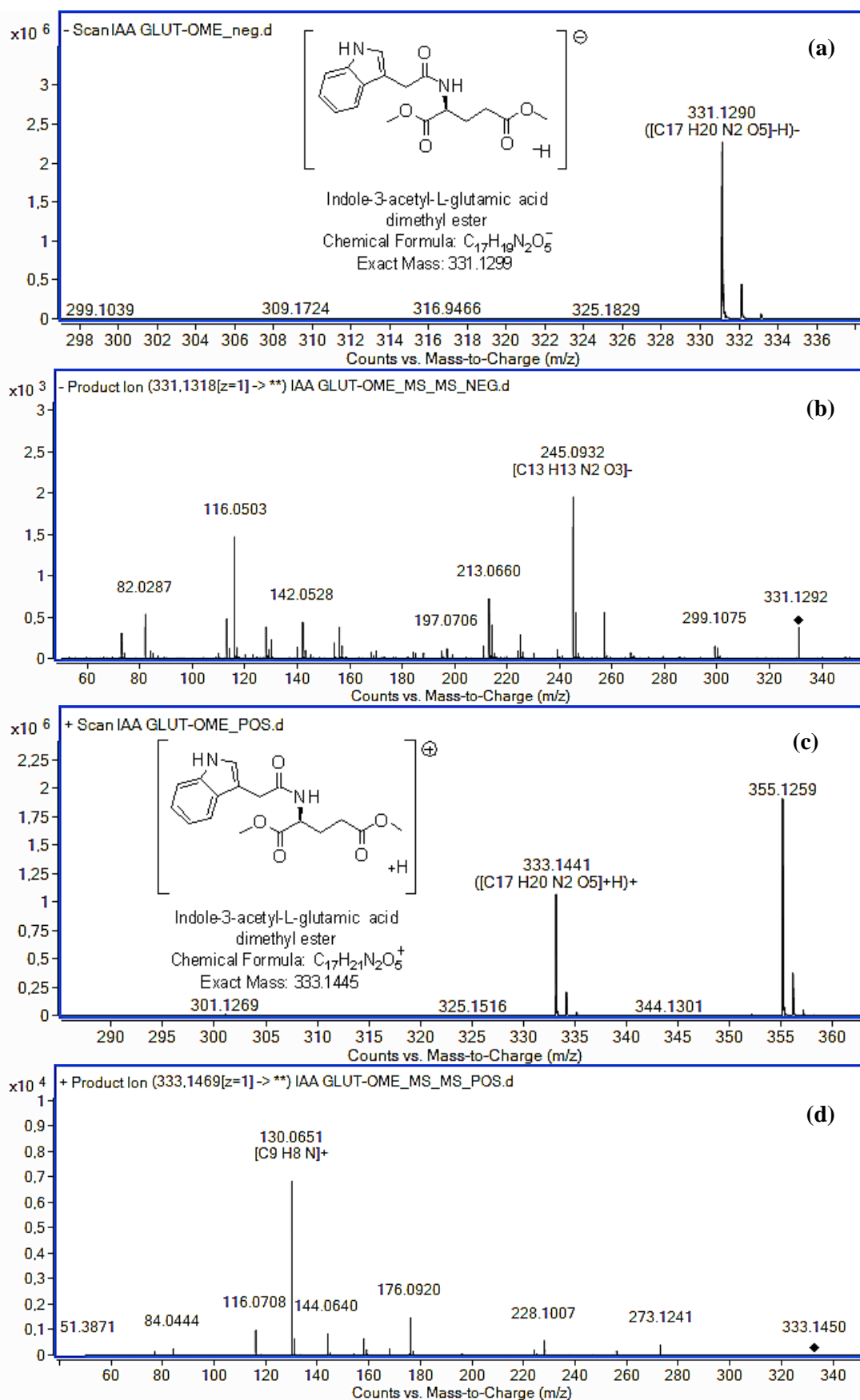
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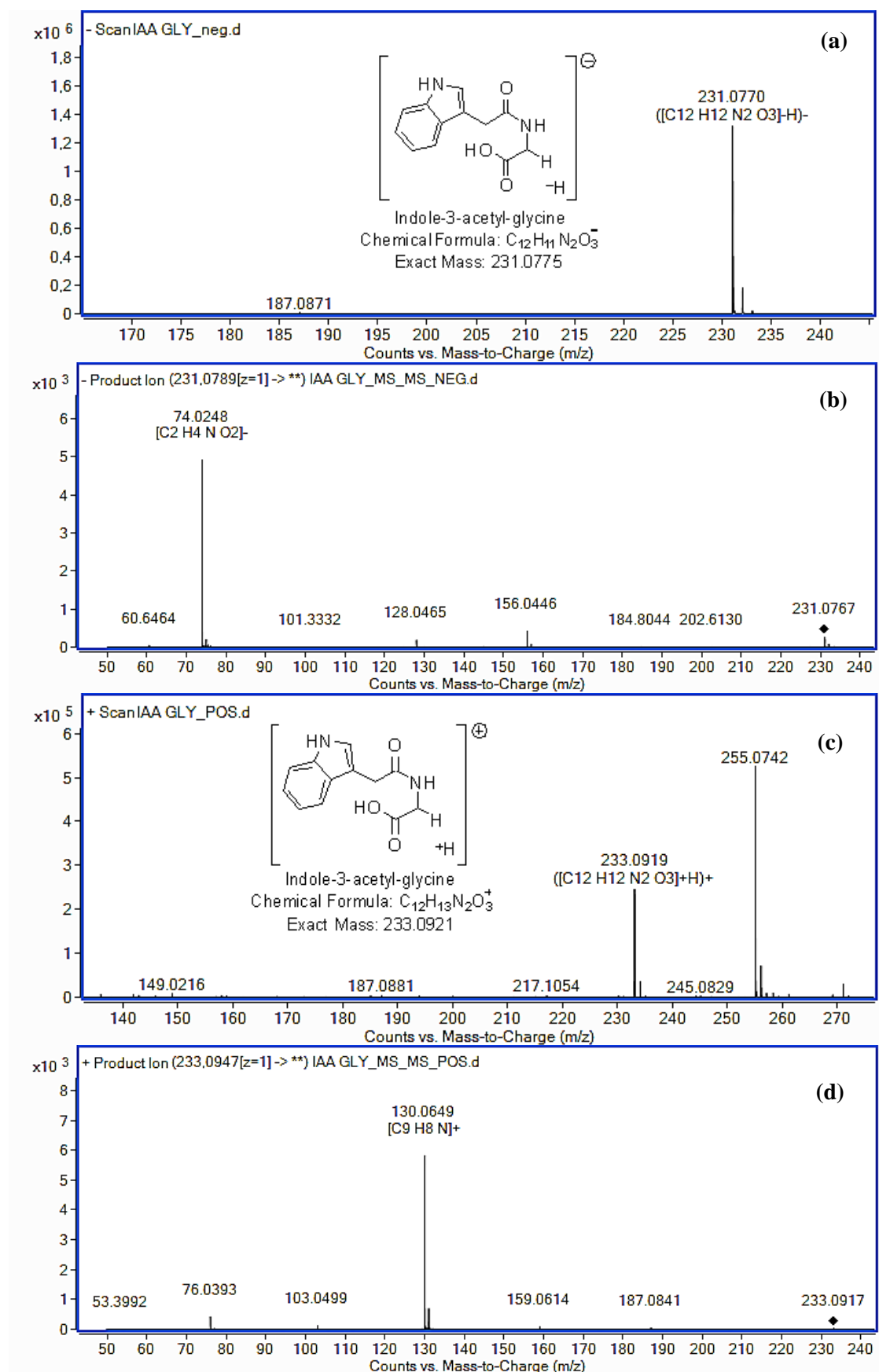
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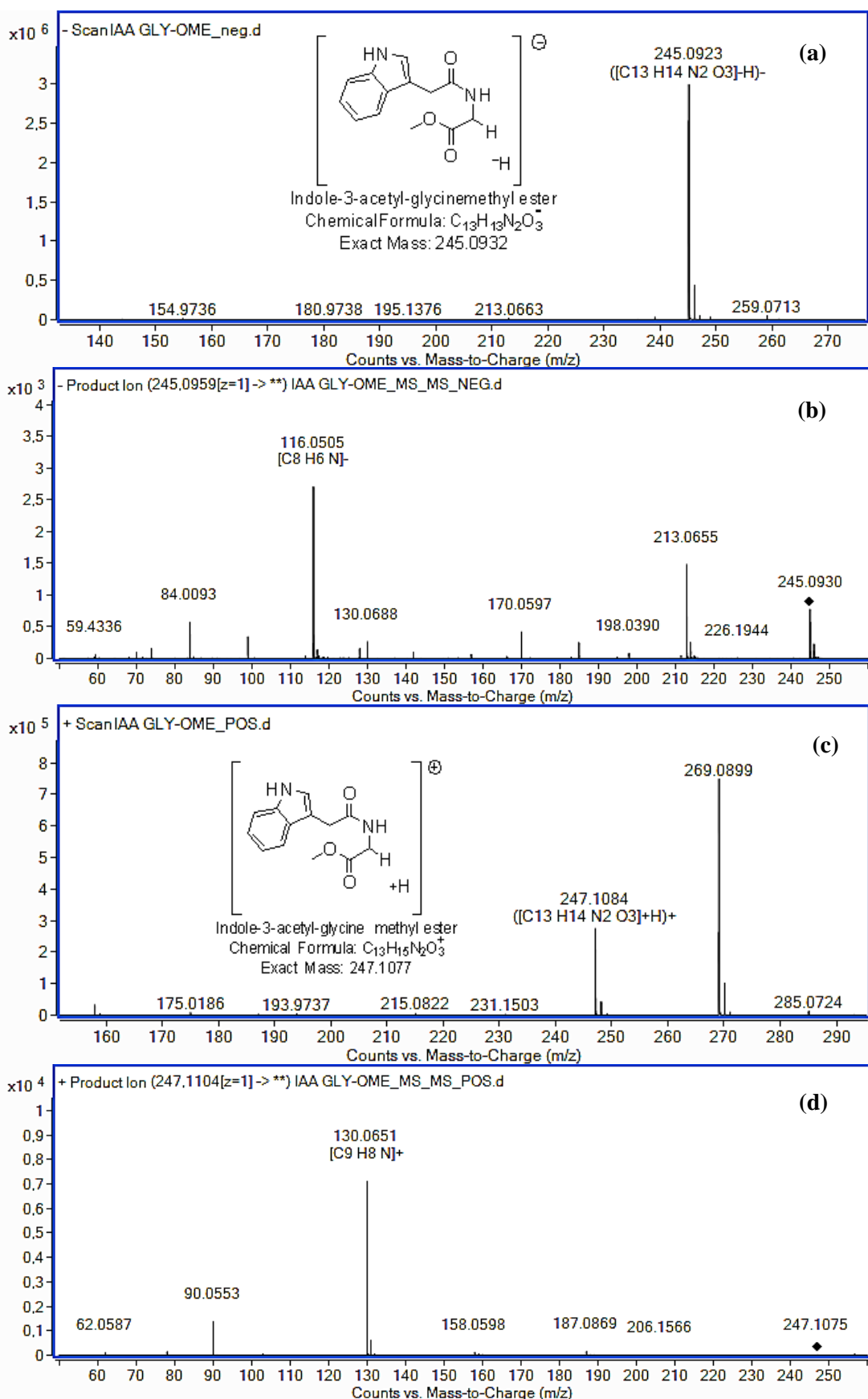
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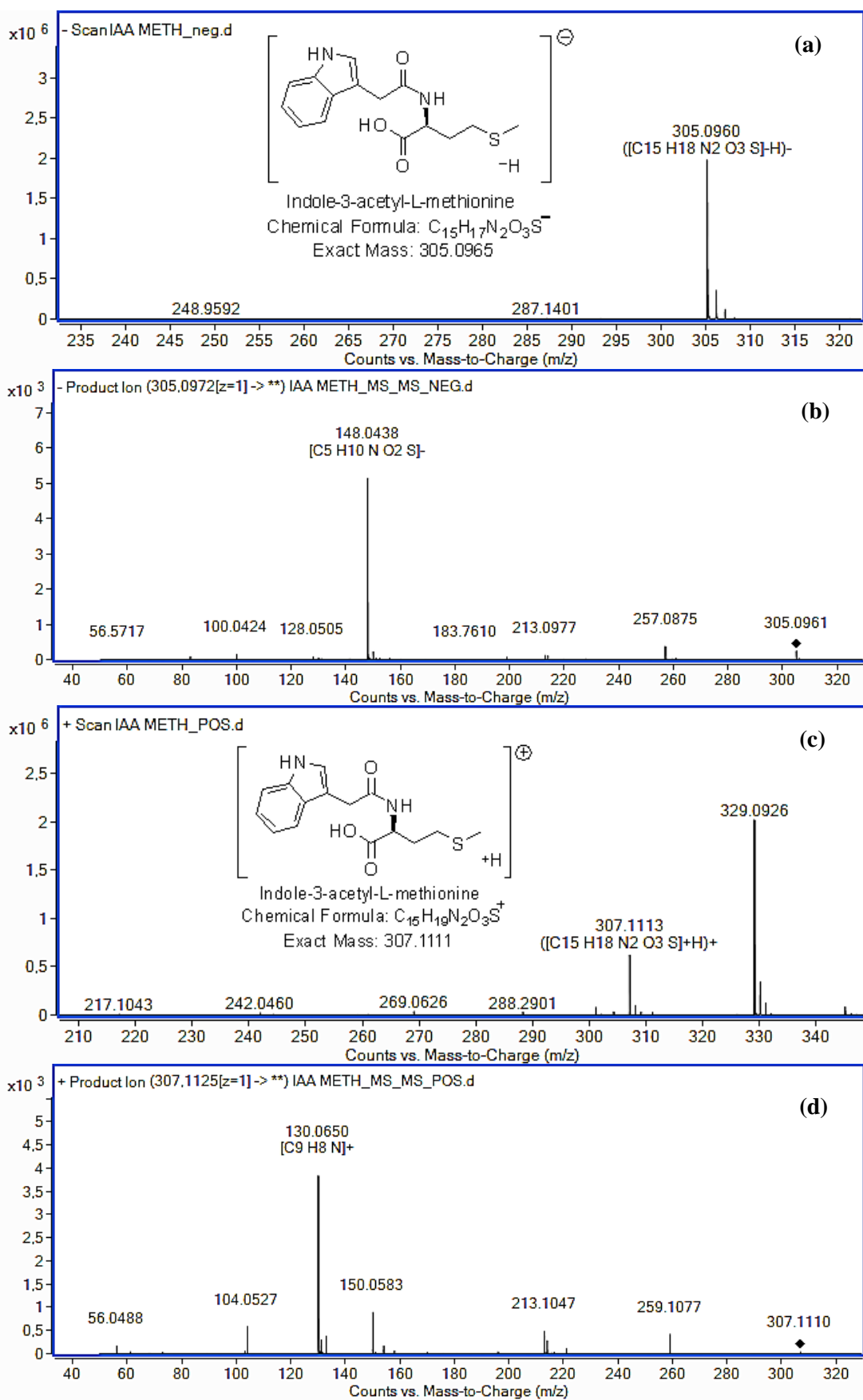
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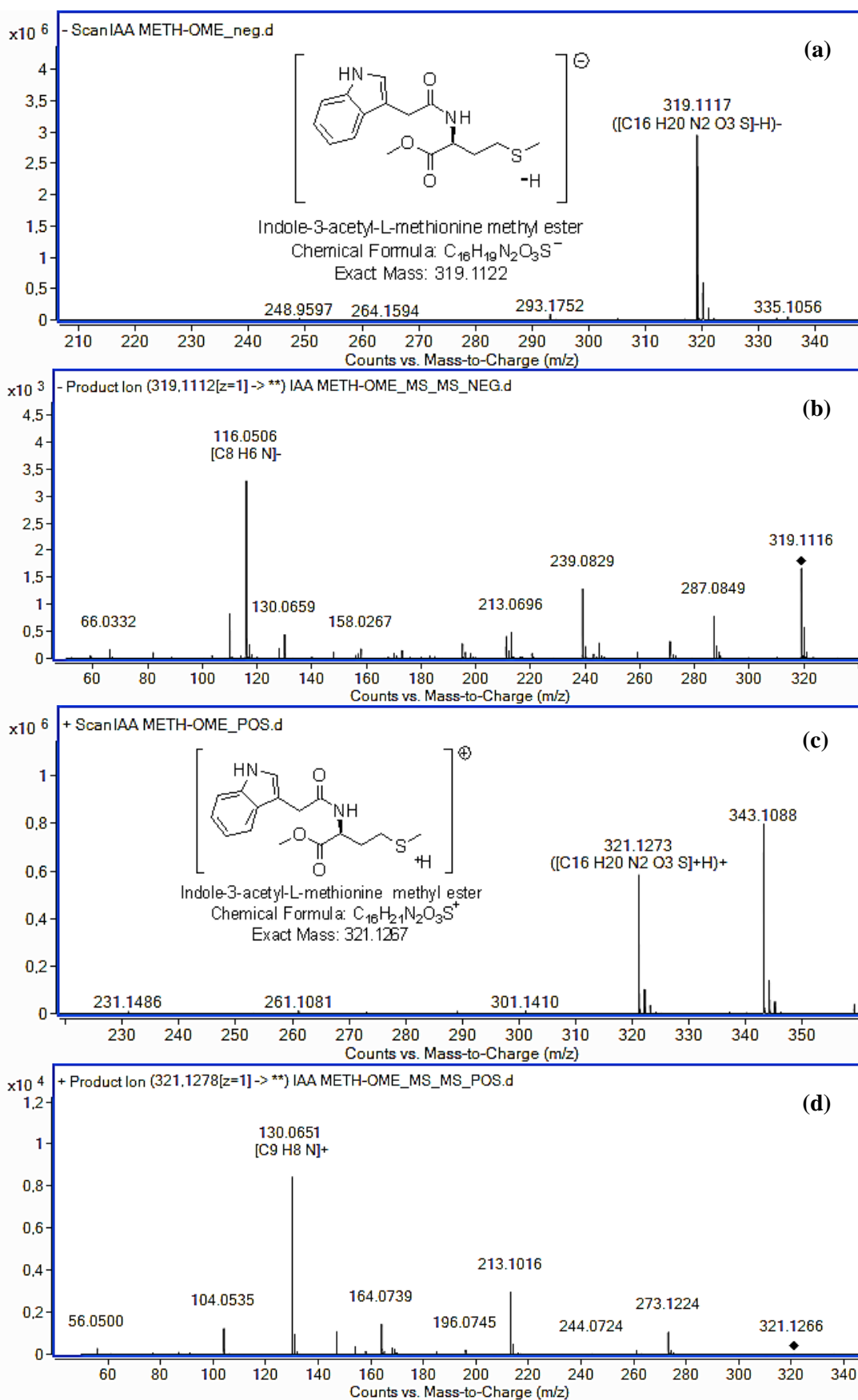
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**Fig. S11** Full scan (a) and MS/MS spectra (b) of indole-3-acetyl-glycine methyl ester under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetyl-glycine methyl ester under positive ESI mode

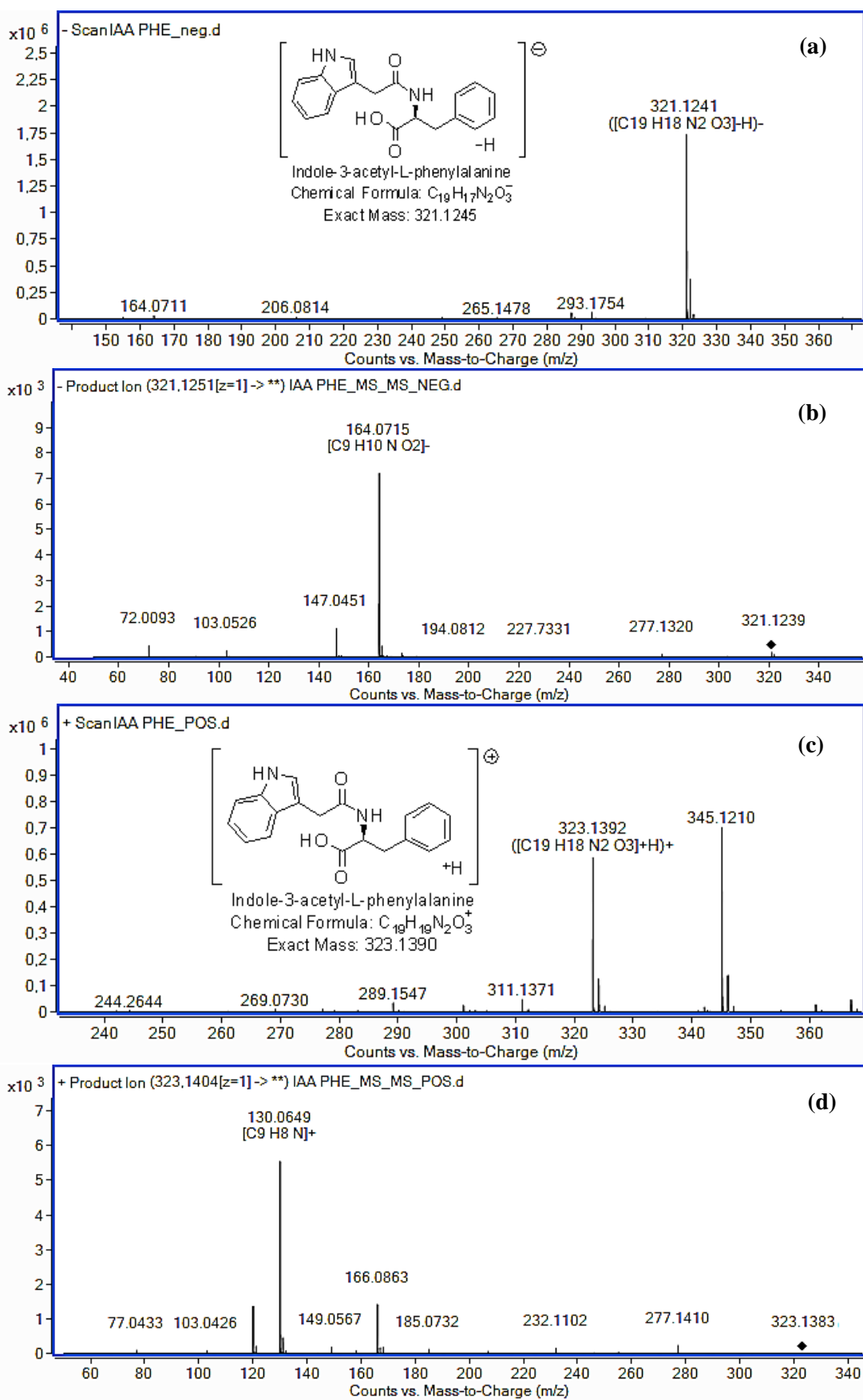


**Fig. S12** Full scan (a) and MS/MS spectra (b) of indole-3-acetyl-L-methionine under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetyl-L-methionine under positive ESI mode

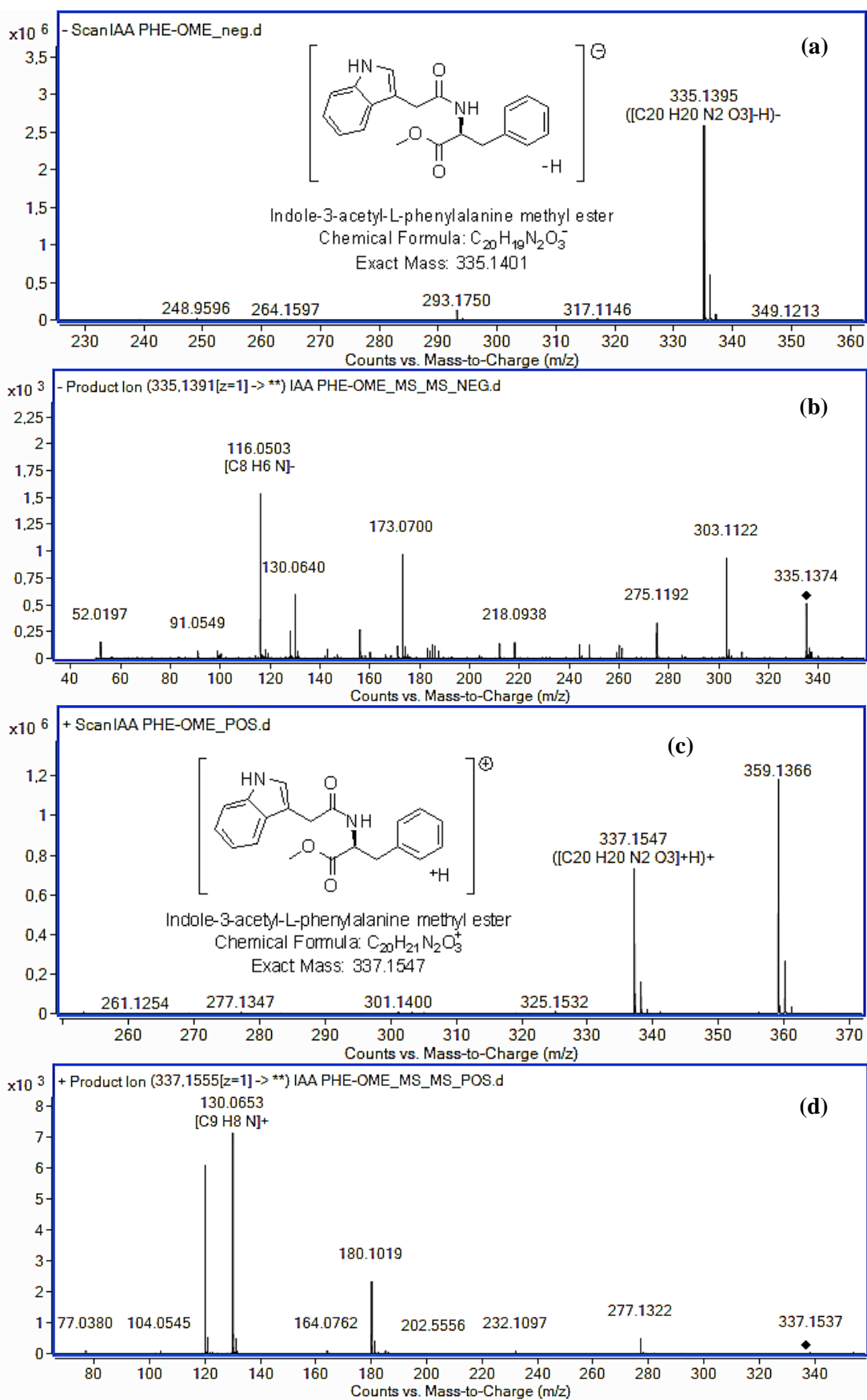


**Fig. S13** Full scan (a) and MS/MS spectra (b) of indole-3-acetyl-L-methionine methyl ester under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetyl-L-methionine methyl ester under positive ESI mode

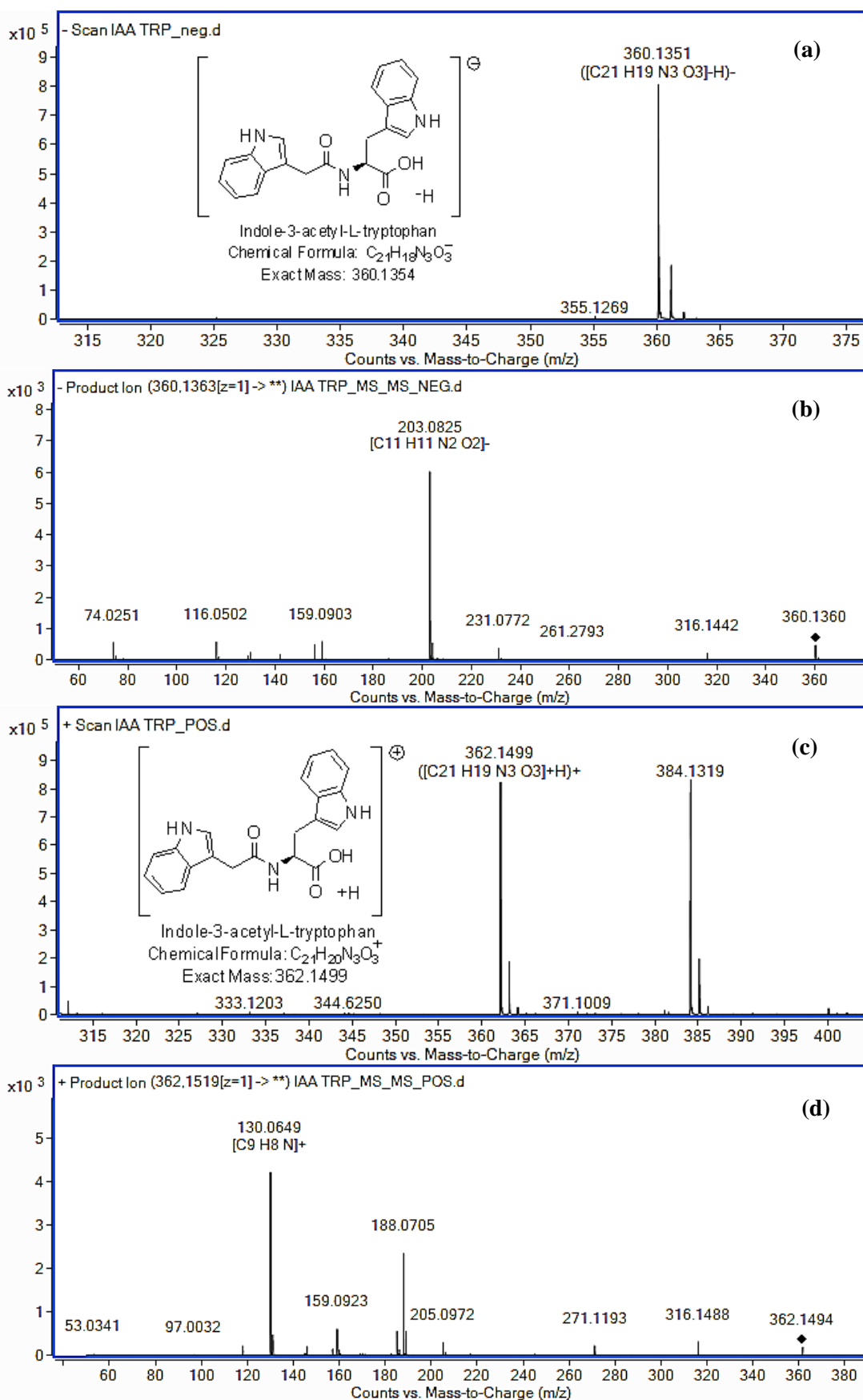




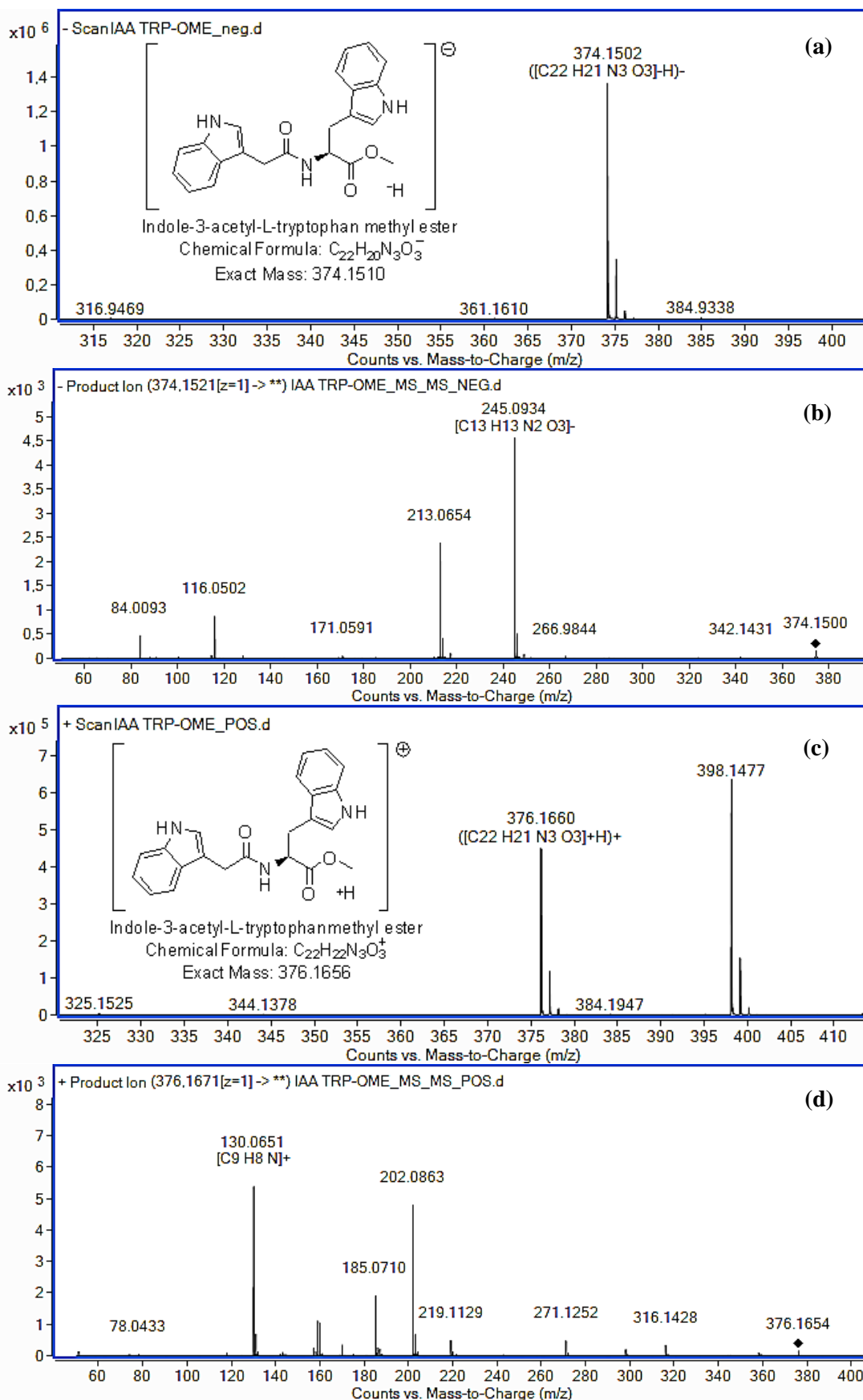
**Fig. S14** Full scan (a) and MS/MS spectra (b) of indole-3-acetyl-L-phenylalanine under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetyl-L-phenylalanine under positive ESI mode



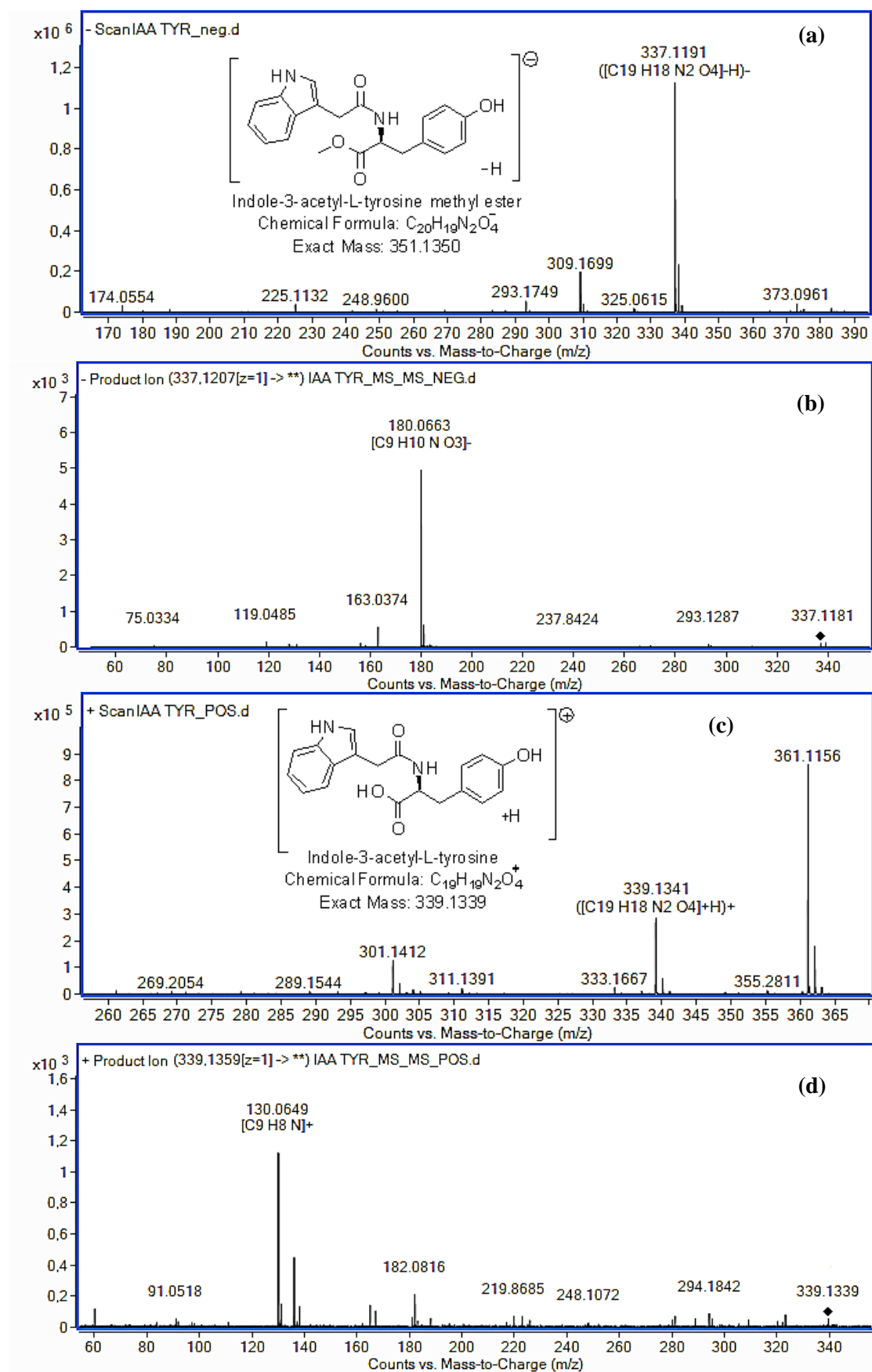
**Fig. S15** Full scan (a) and MS/MS spectra (b) of indole-3-acetyl-L-phenylalanine methyl ester under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetyl-L-phenylalanine methyl ester under positive ESI mode



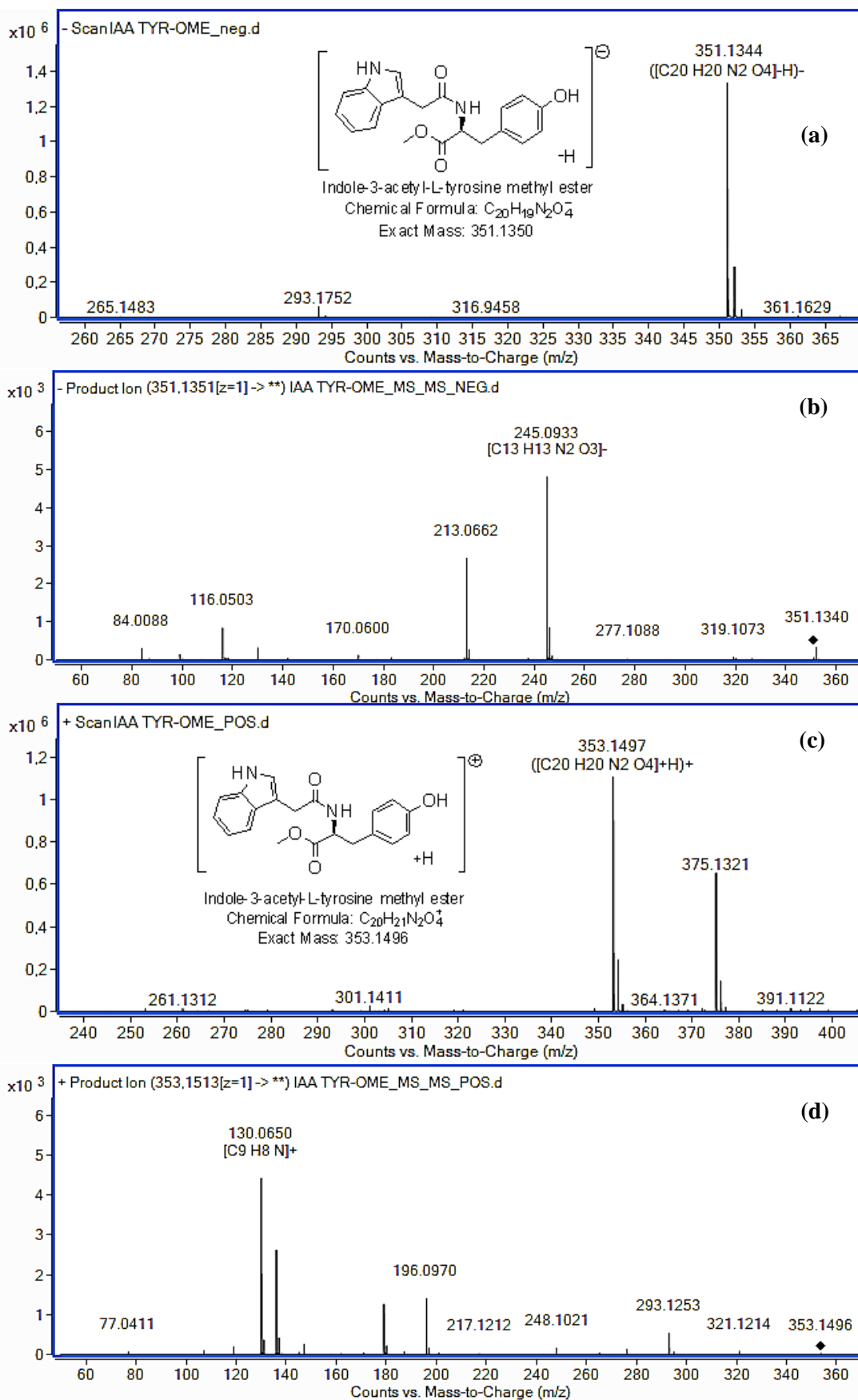
**Fig. S16** Full scan (a) and MS/MS spectra (b) of indole-3-acetyl-L-tryptophan under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetyl-L-tryptophan under positive ESI mode



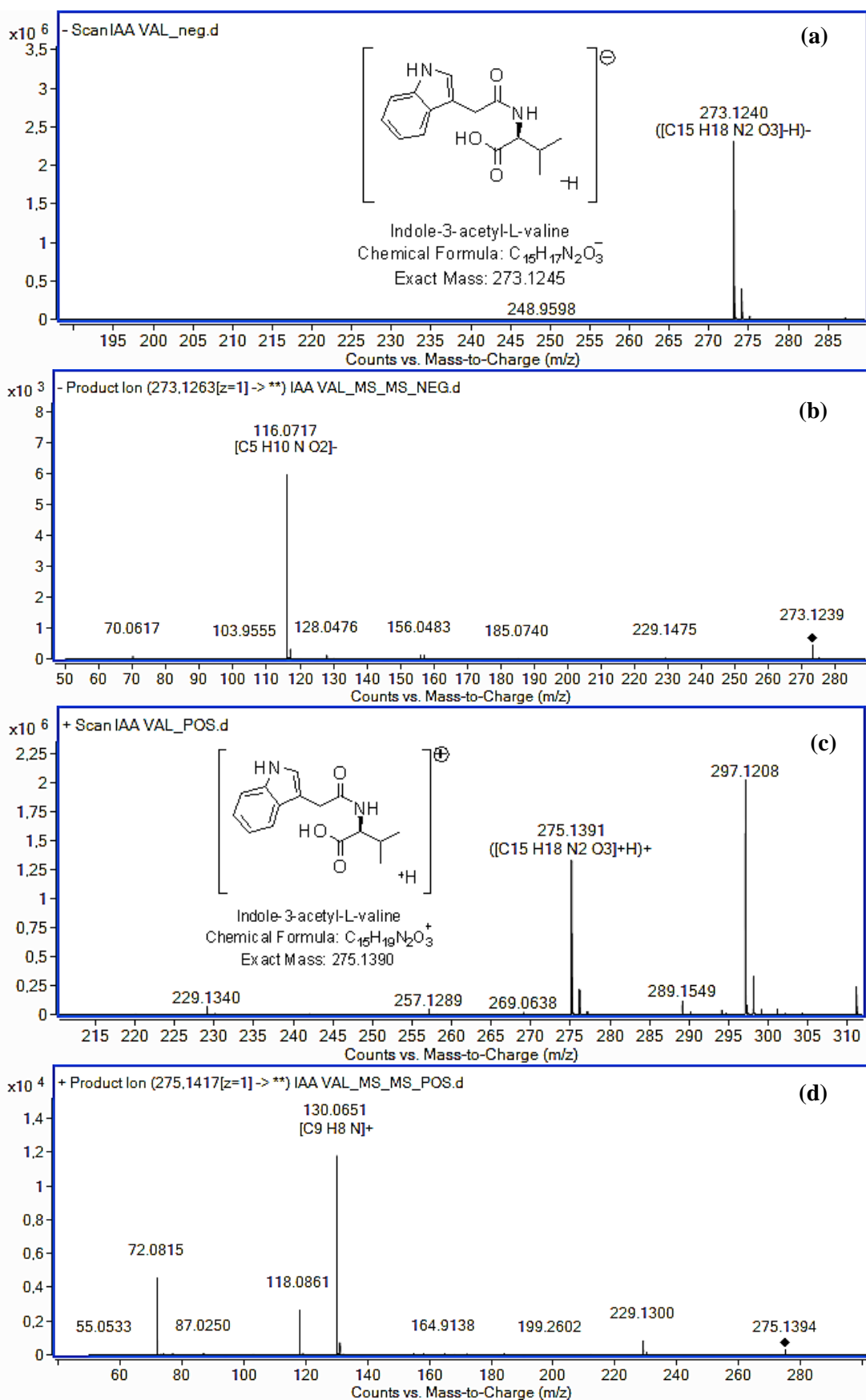
**Fig. S17** Full scan (a) and MS/MS spectra (b) of indole-3-acetyl-L-tryptophan methyl ester under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetyl-L-tryptophan methyl ester under positive ESI mode



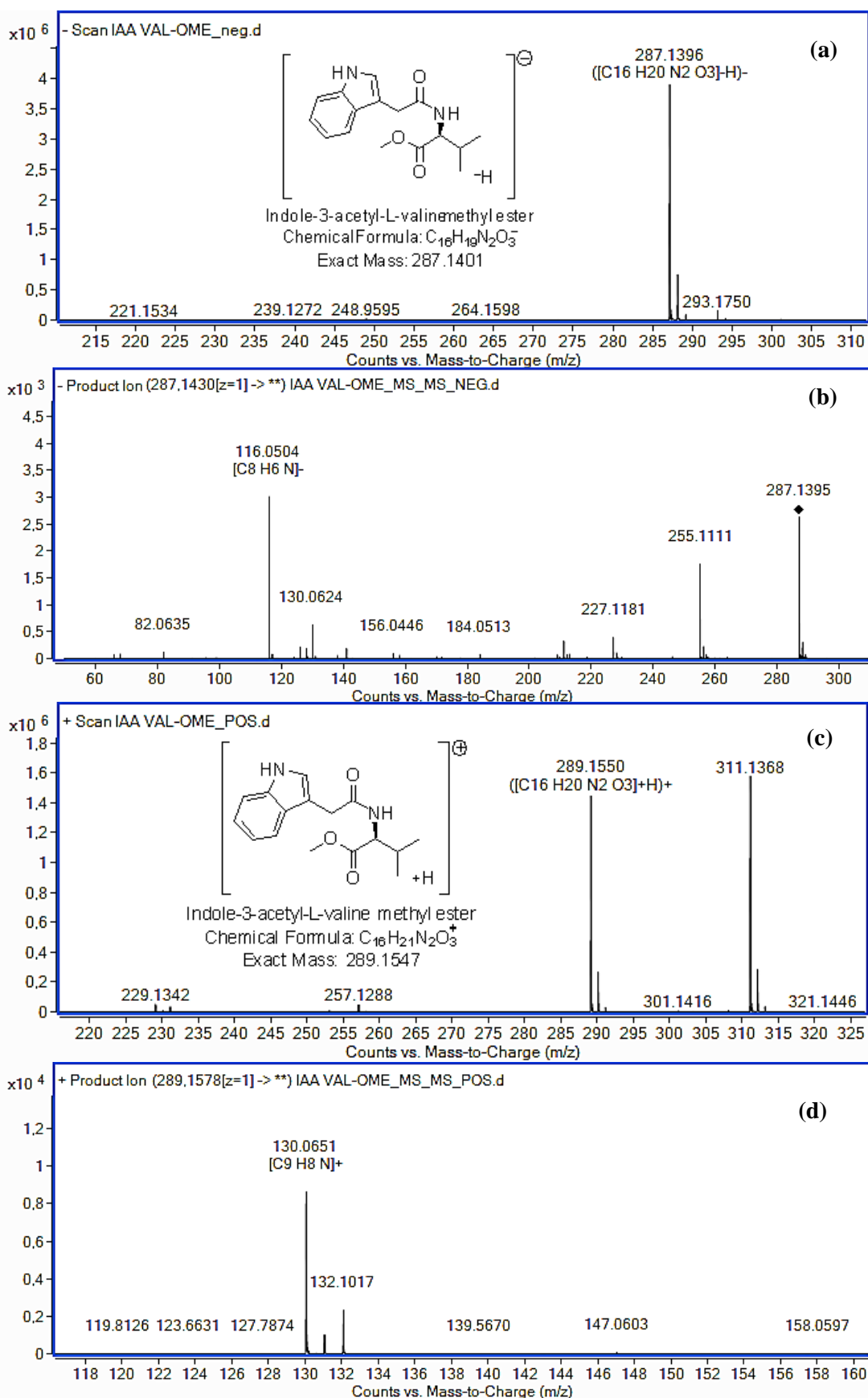
**Fig. S18** Full scan (a) and MS/MS spectra (b) of indole-3-acetyl-L-tyrosine under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetyl-L-tyrosine under positive ESI mode



**Fig. S19** Full scan (a) and MS/MS spectra (b) of indole-3-acetyl-L-tyrosine methyl ester under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetyl-L-tyrosine methyl ester under positive ESI mode

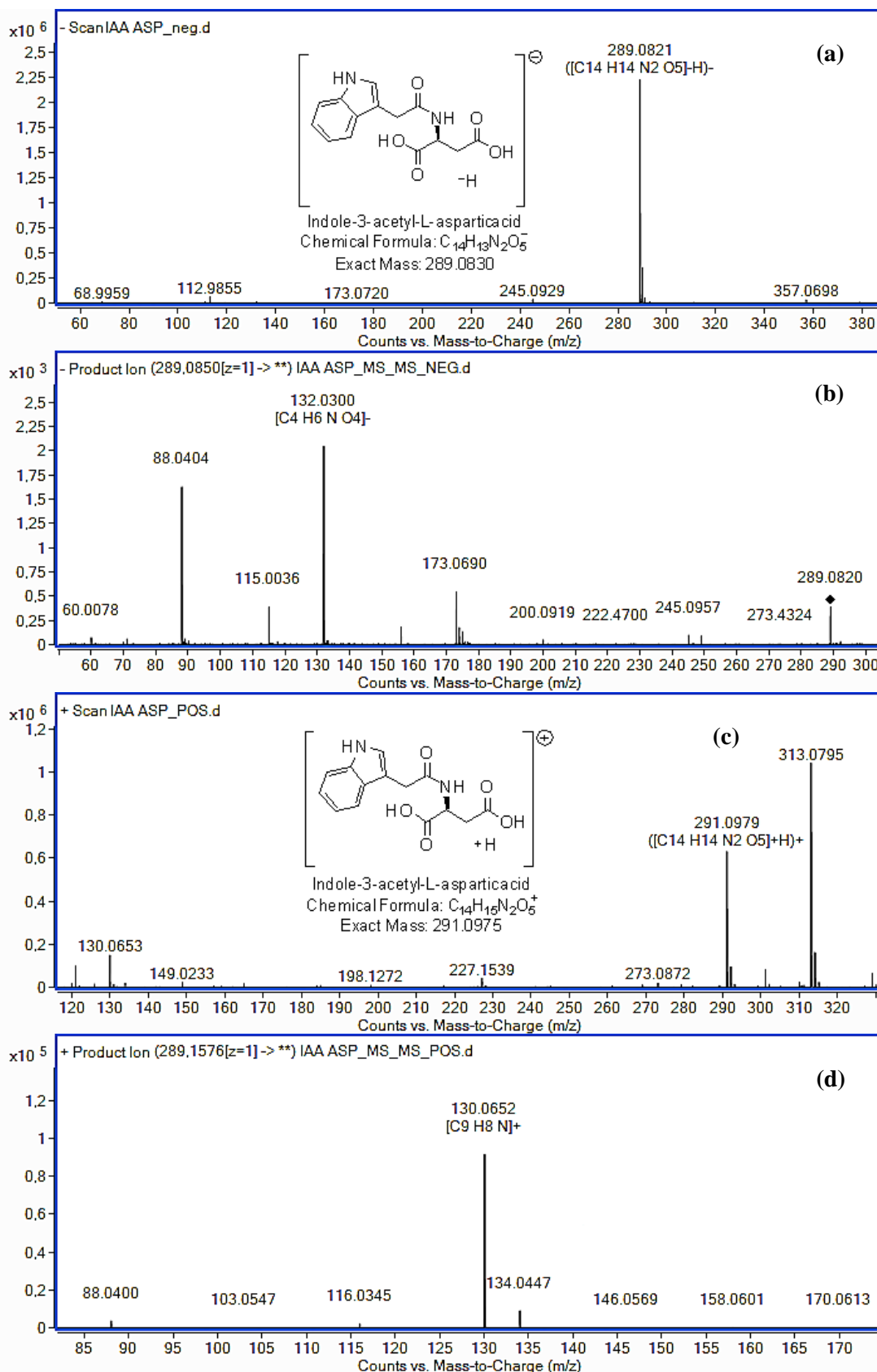


**Fig. S20** Full scan (a) and MS/MS spectra (b) of indole-3-acetyl-L-valine under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetyl-L-valine under positive ESI mode

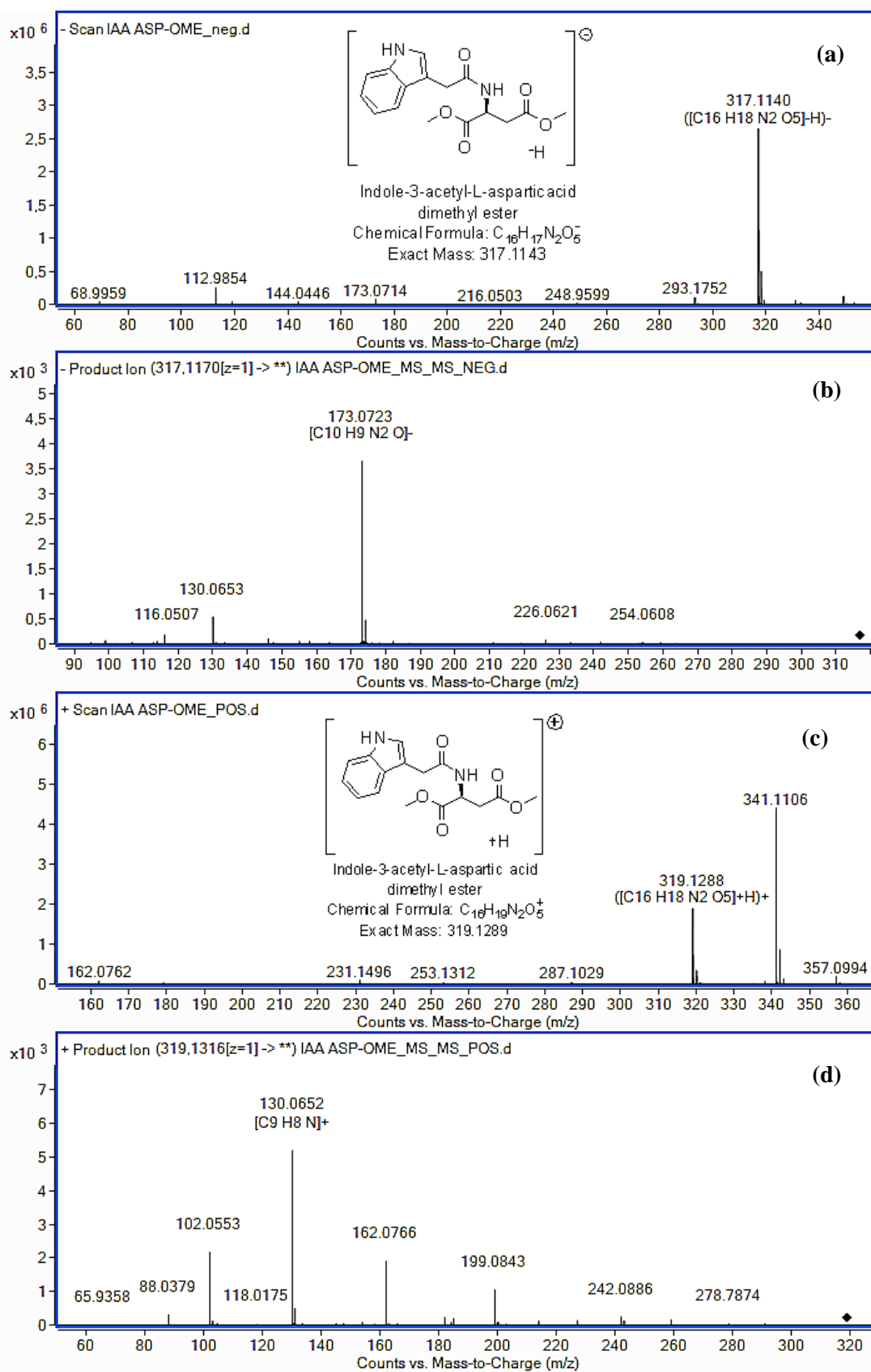


**Fig. S21** Full scan (a) and MS/MS spectra (b) of indole-3-acetyl-L-valine methyl ester under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetyl-L-valine methyl ester under positive ESI mode





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**Fig. S23** Full scan (a) and MS/MS spectra (b) of indole-3-acetyl-L-aspartic acid dimethyl ester under negative ESI mode. Full scan (c) and MS/MS spectra (d) of indole-3-acetyl-L-aspartic acid dimethyl ester under positive ESI mode

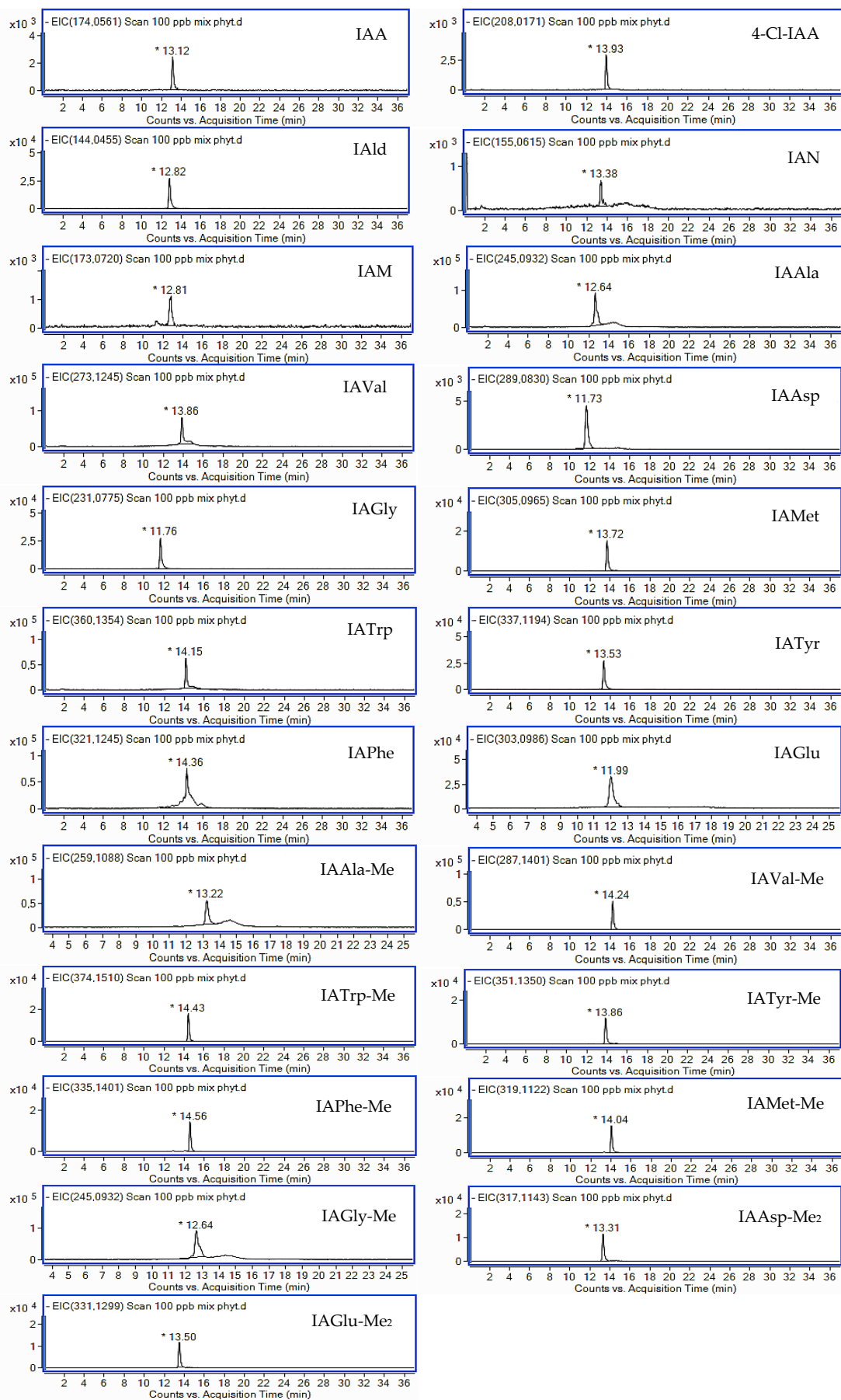


Fig. S24 Extracted ion chromatograms of studied compounds in negative ESI mode

**Table S1** MS data of the identification of studied compounds in *B. oleracea* var. *capitata*

Compound name	Elemental composition	Rt <sup>1</sup> (min)	Positive ionization mode [M+H] <sup>+</sup>				Rt <sup>1</sup> (min)	Negative ionization mode [M-H] <sup>-</sup>			
			Peak intensity	Calculated mass (m/z)	Observed mass (m/z)	Mass error		Peak intensity	Calculated mass (m/z)	Observed mass (m/z)	Mass error
IAA	C <sub>10</sub> H <sub>9</sub> NO <sub>2</sub>	13.10	9.1x10 <sup>5</sup>	176.0706	176.0706	0	13.12	1.7x10 <sup>5</sup>	174.0561	174.0556	2.9
IAlD	C <sub>9</sub> H <sub>7</sub> NO <sub>2</sub>	12.82	1.6x10 <sup>6</sup>	146.0600	146.0598	1.4	12.81	2.5x10 <sup>6</sup>	144.0455	144.0451	2.8
IAN	C <sub>10</sub> H <sub>8</sub> N <sub>2</sub>	13.39	5.9x10 <sup>3</sup>	157.0760	157.0764	2.5	13.38	9.9x10 <sup>3</sup>	155.0615	155.0618	1.9
IAAla	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.66	2.3x10 <sup>3</sup>	247.1077	247.1069	3.2	12.63	5.0x10 <sup>3</sup>	245.0932	245.0941	3.7
IAlVal	C <sub>15</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub>	13.87	5.8x10 <sup>4</sup>	275.1390	275.1391	0.4	13.86	5.9x10 <sup>4</sup>	273.1245	273.1245	0
IAGly	C <sub>12</sub> H <sub>12</sub> N <sub>2</sub> O <sub>3</sub>	11.76	3.5x10 <sup>2</sup>	233.0921	233.0918	1.3	11.75	8.2x10 <sup>2</sup>	231.0775	231.0771	1.7
IAMet	C <sub>15</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub> S	13.70	1.3x10 <sup>3</sup>	307.1111	307.1120	2.9	13.73	1.7x10 <sup>3</sup>	305.0965	305.0975	3.3
IATrp	C <sub>21</sub> H <sub>19</sub> N <sub>3</sub> O <sub>3</sub>	14.15	2.0x10 <sup>3</sup>	362.1499	362.1501	0.6	14.17	2.3x10 <sup>3</sup>	360.1354	360.1341	3.6
IAPhe	C <sub>19</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub>	14.37	1.4x10 <sup>3</sup>	323.1390	323.1393	0.9	14.35	2.1x10 <sup>3</sup>	321.1245	321.1240	1.6
IAAsp-Me <sub>2</sub>	C <sub>16</sub> H <sub>18</sub> N <sub>2</sub> O <sub>5</sub>	13.30	3.0x10 <sup>3</sup>	319.1288	319.1280	2.5	13.31	3.2x10 <sup>3</sup>	317.1143	317.1149	1.9
IAPhe-Me	C <sub>20</sub> H <sub>20</sub> N <sub>2</sub> O <sub>3</sub>	14.55	1.0x10 <sup>3</sup>	337.1547	337.1550	0.9	14.56	2.1x10 <sup>3</sup>	335.1401	335.1406	1.5
IAGly-Me	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.66	2.5x10 <sup>3</sup>	247.1077	247.1069	3.2	12.63	7.0x10 <sup>3</sup>	245.0932	245.0935	1.2
IAlVal-Me	C <sub>16</sub> H <sub>20</sub> N <sub>2</sub> O <sub>3</sub>	14.24	2.0x10 <sup>4</sup>	289.1547	289.1547	0	14.22	1.8x10 <sup>4</sup>	287.1401	287.1406	1.7
IATyr-Me	C <sub>20</sub> H <sub>19</sub> N <sub>2</sub> O <sub>4</sub>	13.87	7.2x10 <sup>4</sup>	353.1496	353.1499	0.8	13.86	7.0x10 <sup>4</sup>	351.1350	351.1345	1.4
IASer-Me	C <sub>14</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub>	12.34	6.2x10 <sup>4</sup>	277.1183	277.1182	0.4	12.33	6.8x10 <sup>4</sup>	275.1037	275.1032	1.8
IAGlu-Me <sub>2</sub>	C <sub>17</sub> H <sub>20</sub> N <sub>2</sub> O <sub>5</sub>	13.50	2.1x10 <sup>4</sup>	333.1445	333.1445	0	13.51	3.0x10 <sup>4</sup>	331.1299	331.1295	1.2

<sup>1</sup>Rt: Retention time

**Table S2** MS data of the identification of studied compounds in *B. oleracea* var. *rubra*

Compound name	Elemental composition	Rt <sup>1</sup> (min)	Positive ionization mode [M+H] <sup>+</sup>				Rt <sup>1</sup> (min)	Negative ionization mode [M-H] <sup>-</sup>			
			Peak intensity	Calculated mass ( <i>m/z</i> )	Observed mass ( <i>m/z</i> )	Mass error		Peak intensity	Calculated mass ( <i>m/z</i> )	Observed mass ( <i>m/z</i> )	Mass error
IAA	C <sub>10</sub> H <sub>9</sub> NO <sub>2</sub>	13.11	8.8x10 <sup>3</sup>	176.0706	176.0709	1.7	13.12	1.2x10 <sup>3</sup>	174.0561	174.0557	2.3
4-Cl-IAA	C <sub>10</sub> H <sub>8</sub> ClNO <sub>2</sub>	13.90	2.5x10 <sup>2</sup>	210.0316	210.0321	2.4	13.93	7.3x10 <sup>2</sup>	208.0171	208.0165	2.9
			1.8x10 <sup>2</sup>	212.0287	212.0297	4.7		6.5x10 <sup>2</sup>	210.0142	210.0149	3.3
IAlD	C <sub>9</sub> H <sub>7</sub> NO <sub>2</sub>	12.81	2.5x10 <sup>4</sup>	146.0600	146.0605	3.4	12.80	4.3x10 <sup>4</sup>	144.0455	144.0450	3.5
IAN	C <sub>10</sub> H <sub>8</sub> N <sub>2</sub>	13.39	2.9x10 <sup>2</sup>	157.0760	157.0755	3.2	13.38	9.5x10 <sup>2</sup>	155.0615	155.0621	3.9
IAAla	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.67	6.4x10 <sup>2</sup>	247.1077	247.1078	0.4	12.65	9.1x10 <sup>2</sup>	245.0932	245.0944	4.9
IAMet	C <sub>15</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub> S	13.72	5.2x10 <sup>3</sup>	307.1111	307.1116	1.6	13.70	6.0x10 <sup>3</sup>	305.0965	305.0972	2.3
IATrp	C <sub>21</sub> H <sub>19</sub> N <sub>3</sub> O <sub>3</sub>	14.14	2.3x10 <sup>2</sup>	362.1499	362.1511	3.3	14.12	3.0x10 <sup>2</sup>	360.1354	360.1360	1.7
IAPhe	C <sub>19</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub>	14.37	2.5x10 <sup>3</sup>	323.1390	323.1399	2.8	14.35	3.3x10 <sup>3</sup>	321.1245	321.1238	2.2
IAGly-Me	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.66	2.0x10 <sup>3</sup>	247.1077	247.1088	4.5	12.67	7.1x10 <sup>3</sup>	245.0932	245.0939	2.9
IASer-Me	C <sub>14</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub>	12.35	1.7x10 <sup>3</sup>	277.1183	277.1191	2.9	12.33	1.9x10 <sup>3</sup>	275.1037	275.1025	4.4
IVal-Me	C <sub>16</sub> H <sub>20</sub> N <sub>2</sub> O <sub>3</sub>	14.22	8.1x10 <sup>2</sup>	289.1547	289.1545	0.7	14.21	8.4x10 <sup>2</sup>	287.1401	287.1408	2.4

<sup>1</sup>Rt: Retention time

**Table S3** MS data of the identification of studied compounds in *B. rapa* subsp. *rapifera*

Compound name	Elemental composition	Rt <sup>1</sup> (min)	Positive ionization mode [M+H] <sup>+</sup>				Rt <sup>1</sup> (min)	Negative ionization mode [M-H] <sup>-</sup>			
			Peak	Calculated	Observed	Mass		Peak	Calculated	Observed	Mass
			intensity	mass (m/z)	mass (m/z)	error		intensity	mass (m/z)	mass (m/z)	error
IAA	C <sub>10</sub> H <sub>9</sub> NO <sub>2</sub>	13.13	8.9x10 <sup>4</sup>	176.0706	176.0709	1.7	13.12	9.6x10 <sup>3</sup>	174.0561	174.0556	2.9
IAld	C <sub>9</sub> H <sub>7</sub> NO <sub>2</sub>	12.82	6.9x10 <sup>4</sup>	146.0600	146.0603	2.1	12.83	7.5x10 <sup>4</sup>	144.0455	144.0453	1.4
IAN	C <sub>10</sub> H <sub>8</sub> N <sub>2</sub>	13.37	2.5x10 <sup>2</sup>	157.0760	157.0755	3.2	13.38	8.0x10 <sup>2</sup>	155.0615	155.0615	0
IAAla	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.64	2.9x10 <sup>3</sup>	247.1077	247.1082	2.0	12.66	6.6x10 <sup>3</sup>	245.0932	245.0930	0.8
IAVal	C <sub>15</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub>	13.87	1.5x10 <sup>3</sup>	275.1390	275.1391	0.4	13.88	1.9x10 <sup>3</sup>	273.1245	273.1238	2.6
IATrp	C <sub>21</sub> H <sub>19</sub> N <sub>3</sub> O <sub>3</sub>	14.16	5.3x10 <sup>2</sup>	362.1499	362.1516	4.7	14.14	6.0x10 <sup>2</sup>	360.1354	360.1362	2.2
IAPhe	C <sub>19</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub>	14.38	2.0x10 <sup>4</sup>	323.1390	323.1397	2.2	14.33	3.8x10 <sup>4</sup>	321.1245	321.1232	4.0
IAAsp	C <sub>14</sub> H <sub>14</sub> N <sub>2</sub> O <sub>5</sub>	11.70	1.1x10 <sup>3</sup>	291.0975	291.0969	2.1	11.74	1.5x10 <sup>3</sup>	289.0830	289.0839	3.1
IAGlu	C <sub>15</sub> H <sub>16</sub> N <sub>2</sub> O <sub>5</sub>	11.98	1.8x10 <sup>3</sup>	305.1132	305.1126	2.0	11.97	4.9x10 <sup>3</sup>	303.0986	303.0989	1.0
IATyr-Me	C <sub>20</sub> H <sub>19</sub> N <sub>2</sub> O <sub>4</sub>	13.88	1.6x10 <sup>3</sup>	353.1496	353.1491	1.4	13.86	1.2x10 <sup>3</sup>	351.1350	351.1340	2.8
IAAla-Me	C <sub>14</sub> H <sub>16</sub> N <sub>2</sub> O <sub>3</sub>	13.22	1.0x10 <sup>4</sup>	261.1234	261.1231	1.1	13.21	3.4x10 <sup>4</sup>	259.1088	259.1080	3.1
IAGly-Me	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.64	1.1x10 <sup>3</sup>	247.1077	247.1088	4.5	12.66	5.7x10 <sup>3</sup>	245.0932	245.0927	2.0
IAVal-Me	C <sub>16</sub> H <sub>20</sub> N <sub>2</sub> O <sub>3</sub>	14.23	3.6x10 <sup>3</sup>	289.1547	289.1548	0.3	14.25	4.7x10 <sup>3</sup>	287.1401	287.1406	1.7
IASer-Me	C <sub>14</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub>	12.34	9.4x10 <sup>3</sup>	277.1183	277.1184	0.4	12.33	9.9x10 <sup>3</sup>	275.1037	275.1035	0.7

<sup>1</sup>Rt: Retention time

**Table S4** MS data of the identification of studied compounds in *B. oleracea* var. *botrytis* cv. zarka

Compound name	Elemental composition	Rt <sup>1</sup> (min)	Positive ionization mode [M+H] <sup>+</sup>				Rt <sup>1</sup> (min)	Negative ionization mode [M-H] <sup>-</sup>			
			Peak intensity	Calculated mass (m/z)	Observed mass (m/z)	Mass error		Peak intensity	Calculated mass (m/z)	Observed mass (m/z)	Mass error
IAA	C <sub>10</sub> H <sub>9</sub> NO <sub>2</sub>	13.11	2.6x10 <sup>5</sup>	176.0706	176.0704	1.1	13.11	3.0x10 <sup>4</sup>	174.0561	174.0557	2.3
IAld	C <sub>9</sub> H <sub>7</sub> NO <sub>2</sub>	13.95	3.8x10 <sup>5</sup>	146.0600	146.0601	0.7	13.94	4.7x10 <sup>5</sup>	144.0455	144.0450	3.5
IAN	C <sub>10</sub> H <sub>8</sub> N <sub>2</sub>	13.39	1.8x10 <sup>3</sup>	157.0760	157.0768	5.1	13.36	6.0x10 <sup>2</sup>	155.0615	155.0613	1.3
IAAla	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.62	2.5x10 <sup>4</sup>	247.1077	247.1087	4.0	12.65	5.9x10 <sup>4</sup>	245.0932	245.0944	4.9
IAla	C <sub>15</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub>	13.89	3.3x10 <sup>5</sup>	275.1390	275.1392	0.7	13.88	3.5x10 <sup>5</sup>	273.1245	273.1236	3.3
IATrp	C <sub>21</sub> H <sub>19</sub> N <sub>3</sub> O <sub>3</sub>	14.15	1.8x10 <sup>3</sup>	362.1499	362.1505	1.7	14.11	1.9x10 <sup>3</sup>	360.1354	360.1354	0
IAGly-Me	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.62	2.8x10 <sup>3</sup>	247.1077	247.1086	3.6	12.65	7.9x10 <sup>3</sup>	245.0932	245.0928	1.6

<sup>1</sup>Rt: Retention time

**Table S5** MS data of the identification of studied compounds in *B. oleracea* var. *italica* cv. calabrese

Compound name	Elemental composition	Rt <sup>1</sup> (min)	Positive ionization mode [M+H] <sup>+</sup>				Rt <sup>1</sup> (min)	Negative ionization mode [M-H] <sup>-</sup>			
			Peak	Calculated	Observed	Mass		Peak	Calculated	Observed	Mass
			intensity	mass (m/z)	mass (m/z)	error		intensity	mass (m/z)	mass (m/z)	error
IAA	C <sub>10</sub> H <sub>9</sub> NO <sub>2</sub>	13.09	2.6x10 <sup>5</sup>	176.0706	176.0704	1.1	13.11	3.9x10 <sup>4</sup>	174.0561	174.0557	2.3
IAld	C <sub>9</sub> H <sub>7</sub> NO <sub>2</sub>	12.81	5.0x10 <sup>5</sup>	146.0600	146.0602	1.4	12.80	6.7x10 <sup>5</sup>	144.0455	144.0452	2.1
IAN	C <sub>10</sub> H <sub>8</sub> N <sub>2</sub>	13.39	1.4x10 <sup>3</sup>	157.0760	157.0759	0.6	13.36	6.3x10 <sup>3</sup>	155.0615	155.0612	1.9
IAAla	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.63	2.1x10 <sup>4</sup>	247.1077	247.1078	0.4	12.66	6.5x10 <sup>4</sup>	245.0932	245.0931	0.4
IVal	C <sub>15</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub>	13.85	2.0x10 <sup>4</sup>	275.1390	275.1392	0.7	13.88	3.4x10 <sup>3</sup>	273.1245	273.1234	4.0
IATrp	C <sub>21</sub> H <sub>19</sub> N <sub>3</sub> O <sub>3</sub>	14.14	5.2x10 <sup>3</sup>	362.1499	362.1500	0.3	14.15	6.0x10 <sup>3</sup>	360.1354	360.1345	2.5
IAPhe	C <sub>19</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub>	14.36	6.7x10 <sup>2</sup>	323.1390	323.1399	2.8	14.37	7.7x10 <sup>2</sup>	321.1245	321.1241	1.2
IAGlu	C <sub>15</sub> H <sub>16</sub> N <sub>2</sub> O <sub>5</sub>	11.98	5.0x10 <sup>3</sup>	305.1132	305.1144	3.9	11.99	9.4x10 <sup>3</sup>	303.0986	303.0985	0.3
IAGly-Me	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.63	1.3x10 <sup>2</sup>	247.1077	247.1074	1.2	12.66	5.5x10 <sup>2</sup>	245.0932	245.0939	2.9
IAAla-Me	C <sub>14</sub> H <sub>16</sub> N <sub>2</sub> O <sub>3</sub>	13.20	3.0x10 <sup>3</sup>	261.1234	261.1233	0.4	13.23	6.9x10 <sup>3</sup>	259.1088	259.1092	1.5
IVal-Me	C <sub>16</sub> H <sub>20</sub> N <sub>2</sub> O <sub>3</sub>	14.24	2.0x10 <sup>3</sup>	289.1547	289.1550	1.0	14.23	1.0x10 <sup>3</sup>	287.1401	287.1397	1.4
IASer-Me	C <sub>14</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub>	12.34	3.2x10 <sup>3</sup>	277.1183	277.1183	0	12.36	3.5x10 <sup>3</sup>	275.1037	275.1043	2.2

<sup>1</sup>Rt: Retention time



**Table S6** MS data of the identification of studied compounds in *B. oleracea* var. *italica* cv. *violleto*

Compound name	Elemental composition	Rt <sup>1</sup> (min)	Positive ionization mode [M+H] <sup>+</sup>				Rt <sup>1</sup> (min)	Negative ionization mode [M-H] <sup>-</sup>			
			Peak	Calculated	Observed	Mass		Peak	Calculated	Observed	Mass
			intensity	mass (m/z)	mass (m/z)	error		intensity	mass (m/z)	mass (m/z)	error
IAA	C <sub>10</sub> H <sub>9</sub> NO <sub>2</sub>	13.10	1.1x10 <sup>6</sup>	176.0706	176.0700	3.4	13.11	1.3x10 <sup>5</sup>	174.0561	174.0556	2.9
IAld	C <sub>9</sub> H <sub>7</sub> NO <sub>2</sub>	12.82	3.9x10 <sup>5</sup>	146.0600	146.0598	1.4	12.80	4.8x10 <sup>5</sup>	144.0455	144.0453	1.4
IAN	C <sub>10</sub> H <sub>8</sub> N <sub>2</sub>	13.39	2.0x10 <sup>3</sup>	157.0760	157.0764	2.5	13.38	8.2x10 <sup>3</sup>	155.0615	155.0615	0
IAM	C <sub>10</sub> H <sub>10</sub> N <sub>2</sub> O	12.80	7.4x10 <sup>3</sup>	175.0866	175.0870	2.3	12.79	1.5x10 <sup>3</sup>	173.0720	173.0724	2.3
IAAla	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.67	4.1x10 <sup>3</sup>	247.1077	247.1076	0.4	12.65	8.8x10 <sup>3</sup>	245.0932	245.0937	2.0
IVal	C <sub>15</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub>	13.86	3.4x10 <sup>4</sup>	275.1390	275.1391	0.4	13.86	3.8x10 <sup>4</sup>	273.1245	273.1249	1.5
IATrp	C <sub>21</sub> H <sub>19</sub> N <sub>3</sub> O <sub>3</sub>	14.14	3.2x10 <sup>4</sup>	362.1499	362.1514	4.1	14.13	3.0x10 <sup>4</sup>	360.1354	360.1356	0.6
IASer	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>4</sub>	11.29	1.0x10 <sup>2</sup>	263.1026	263.1020	2.3	11.28	1.6x10 <sup>2</sup>	261.0881	261.0890	3.4
IAPhe	C <sub>19</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub>	14.36	3.8x10 <sup>4</sup>	323.1390	323.1401	3.4	14.38	4.5x10 <sup>4</sup>	321.1245	321.1258	4.0
IVal-Me	C <sub>16</sub> H <sub>20</sub> N <sub>2</sub> O <sub>3</sub>	14.28	2.0x10 <sup>3</sup>	289.1547	289.1545	0.7	14.24	4.6x10 <sup>3</sup>	287.1401	287.1405	1.4
IATyr-Me	C <sub>20</sub> H <sub>19</sub> N <sub>2</sub> O <sub>4</sub>	13.89	1.5x10 <sup>3</sup>	353.1496	353.1487	2.5	13.87	1.1x10 <sup>3</sup>	351.1350	351.1341	2.6
IASer-Me	C <sub>14</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub>	12.33	3.3x10 <sup>4</sup>	277.1183	277.1187	1.4	12.32	5.0x10 <sup>4</sup>	275.1037	275.1031	2.2

<sup>1</sup>Rt: Retention time

**Table S7** MS data of the identification of studied compounds in *R. raphanistrum* subsp. *sativus*

Compound name	Elemental composition	Rt <sup>1</sup> (min)	Positive ionization mode [M+H] <sup>+</sup>				Rt <sup>1</sup> (min)	Negative ionization mode [M-H] <sup>-</sup>			
			Peak intensity	Calculated mass (m/z)	Observed mass (m/z)	Mass error		Peak intensity	Calculated mass (m/z)	Observed mass (m/z)	Mass error
			IAA	C <sub>10</sub> H <sub>9</sub> NO <sub>2</sub>	13.12	2.3x10 <sup>5</sup>		176.0706	175.0705	0.6	13.11
IAlD	C <sub>9</sub> H <sub>7</sub> NO <sub>2</sub>	12.80	8.7x10 <sup>4</sup>	146.0600	146.0599	0.7	12.79	9.5x10 <sup>4</sup>	144.0455	144.0452	2.1
IAN	C <sub>10</sub> H <sub>8</sub> N <sub>2</sub>	13.37	1.7x10 <sup>2</sup>	157.0760	157.0767	4.5	13.35	7.0x10 <sup>2</sup>	155.0615	155.0622	4.5
4-Cl-IAA	C <sub>10</sub> H <sub>8</sub> ClNO <sub>2</sub>	13.91	1.1x10 <sup>2</sup>	210.0316	210.0320	1.9	13.90	6.0x10 <sup>2</sup>	208.0171	208.0178	3.4
			0.4x10 <sup>2</sup>	212.0287	212.0280	3.3		5.3x10 <sup>2</sup>	210.0142	210.0133	4.3
IAM	C <sub>10</sub> H <sub>10</sub> N <sub>2</sub> O	12.81	8.1x10 <sup>2</sup>	175.0866	175.0861	2.9	12.82	1.4x10 <sup>2</sup>	173.0720	173.0724	2.3
IAAla	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.64	4.7x10 <sup>4</sup>	247.1077	247.1075	0.8	12.65	8.0x10 <sup>4</sup>	245.0932	245.0922	4.1
IAlVal	C <sub>15</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub>	13.85	1.4x10 <sup>4</sup>	275.1390	275.1388	0.7	13.87	4.4x10 <sup>4</sup>	273.1245	273.1245	0
IAGly	C <sub>12</sub> H <sub>12</sub> N <sub>2</sub> O <sub>3</sub>	11.74	1.6x10 <sup>3</sup>	233.0921	233.0928	3.0	11.76	6.2x10 <sup>3</sup>	231.0775	231.0772	1.3
IATrp	C <sub>21</sub> H <sub>19</sub> N <sub>3</sub> O <sub>3</sub>	14.16	1.7x10 <sup>3</sup>	362.1499	362.1499	0	14.15	1.6x10 <sup>3</sup>	360.1354	360.1342	3.3
IATyr	C <sub>19</sub> H <sub>18</sub> N <sub>2</sub> O <sub>4</sub>	13.54	1.3x10 <sup>3</sup>	339.1339	339.1344	1.5	13.53	1.4x10 <sup>3</sup>	337.1194	337.1197	0.9
IASer	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>4</sub>	11.29	1.6x10 <sup>3</sup>	263.1026	263.1029	1.1	11.29	1.9x10 <sup>3</sup>	261.0881	261.0884	1.1
IAPhe	C <sub>19</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub>	14.37	1.9x10 <sup>3</sup>	323.1390	323.1392	0.6	14.39	2.8x10 <sup>3</sup>	321.1245	321.1255	3.1
IAGlu	C <sub>15</sub> H <sub>16</sub> N <sub>2</sub> O <sub>5</sub>	11.97	2.7x10 <sup>2</sup>	305.1132	305.1137	1.6	11.99	7.2x10 <sup>2</sup>	303.0986	303.0973	4.3
IAAla-Me	C <sub>14</sub> H <sub>16</sub> N <sub>2</sub> O <sub>3</sub>	13.20	3.8x10 <sup>3</sup>	261.1234	261.1236	0.8	13.19	7.5x10 <sup>3</sup>	259.1088	259.1090	0.8
IAlVal-Me	C <sub>16</sub> H <sub>20</sub> N <sub>2</sub> O <sub>3</sub>	14.24	1.8x10 <sup>5</sup>	289.1547	289.1549	0.7	14.24	3.3x10 <sup>5</sup>	287.1401	287.1394	2.4
IAGly-Me	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.64	2.8x10 <sup>3</sup>	247.1077	247.1089	4.9	12.65	6.9x10 <sup>3</sup>	245.0932	245.0941	3.7
IATyr-Me	C <sub>20</sub> H <sub>19</sub> N <sub>2</sub> O <sub>4</sub>	13.86	1.5x10 <sup>3</sup>	353.1496	353.1489	2.0	13.87	1.8x10 <sup>3</sup>	351.1350	351.1342	2.3

IASer-Me	C <sub>14</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub>	12.32	2.9x10 <sup>3</sup>	277.1183	277.1182	0.4	12.32	3.2x10 <sup>3</sup>	275.1037	275.1044	2.5
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<sup>1</sup>Rt: Retention time

**Table S8** MS data of the identification of studied compounds in *E. sativa*

Compound name	Elemental composition	Rt <sup>1</sup> (min)	Positive ionization mode [M+H] <sup>+</sup>				Rt <sup>1</sup> (min)	Negative ionization mode [M-H] <sup>-</sup>			
			Peak intensity	Calculated mass (m/z)	Observed mass (m/z)	Mass error		Peak intensity	Calculated mass (m/z)	Observed mass (m/z)	Mass error
IAA	C <sub>10</sub> H <sub>9</sub> NO <sub>2</sub>	13.13	1.7x10 <sup>4</sup>	176.0706	176.0709	1.7	13.14	1.2x10 <sup>3</sup>	174.0561	174.0557	2.3
IAld	C <sub>9</sub> H <sub>7</sub> NO <sub>2</sub>	12.83	1.7x10 <sup>5</sup>	146.0600	146.0596	2.7	12.82	2.1x10 <sup>5</sup>	144.0455	144.0451	2.8
IAAla	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>3</sub>	12.64	5.0x10 <sup>3</sup>	247.1077	247.1081	1.6	12.67	8.1x10 <sup>3</sup>	245.0932	245.0934	0.8
IAGly	C <sub>12</sub> H <sub>12</sub> N <sub>2</sub> O <sub>3</sub>	11.79	3.2x10 <sup>2</sup>	233.0921	233.0928	3.0	11.80	8.5x10 <sup>2</sup>	231.0775	231.0780	2.2
IVal-Me	C <sub>16</sub> H <sub>20</sub> N <sub>2</sub> O <sub>3</sub>	14.21	3.8x10 <sup>3</sup>	289.1547	289.1554	2.4	14.23	7.2x10 <sup>3</sup>	287.1401	287.1408	2.4
IATyr-Me	C <sub>20</sub> H <sub>19</sub> N <sub>2</sub> O <sub>4</sub>	13.89	7.5x10 <sup>3</sup>	353.1496	353.1508	3.4	13.86	7.9x10 <sup>3</sup>	351.1350	351.1356	1.7
IASer-Me	C <sub>14</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub>	12.34	1.5x10 <sup>3</sup>	277.1183	277.1190	2.5	12.32	3.2x10 <sup>3</sup>	275.1037	275.1031	2.2

<sup>1</sup>Rt: Retention time