

# The Role of Ionic Liquid Interaction in the Separation of Fatty Acid Methyl Esters—Polyunsaturated Geometric Isomers in GC–MS

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**Table S1.** Calibration curve equations, coefficient of determination, intra- and interday repeatability, system suitability and average accuracy of the FAMES, determined in the GLC-674 and CRM47791 mixtures using the optimized methods for the three GC-columns. The optimized experimental conditions are detailed in Materials and Methods.

| FAME  | GC column | Calibration curve estimation | Coefficient of determination ( $R^2$ ) <sup>a</sup> | Repeatability                |                              | System suitability <sup>d</sup> |                      | Average accuracy (%) |
|-------|-----------|------------------------------|-----------------------------------------------------|------------------------------|------------------------------|---------------------------------|----------------------|----------------------|
|       |           |                              |                                                     | Intraday <sup>b</sup> (%RSD) | Interday <sup>c</sup> (%RSD) | Retention time (%RSD)           | Concentration (%RSD) |                      |
| C4:0  | HP-5MS    |                              |                                                     |                              | n.d.                         |                                 |                      |                      |
|       | DB-225MS  |                              |                                                     |                              | n.d.                         |                                 |                      |                      |
|       | SLB-IL111 |                              |                                                     |                              | n.d.                         |                                 |                      |                      |
| C6:0  |           | $y = 2.57E+07x - 1.16E+06$   | 0.9355                                              | 9.83                         | 9.11                         | 0.08                            | 2.89                 | 102.4                |
|       | HP-5MS    | $y = 3.69E+07x - 5.68E+05$   | 0.9987                                              | 3.43                         | 2.04                         | 0.04                            | 3.37                 | 101.1                |
|       | DB-225MS  | $y = 4.72E+07x - 8.16E+05$   | 0.9969                                              | 4.22                         | 2.78                         | 0.17                            | 4.12                 | 102.7                |
|       | SLB-IL111 |                              |                                                     |                              |                              |                                 |                      |                      |
| C8:0  |           | $y = 3.94E+07x - 1.95E+06$   | 0.9480                                              | 8.40                         | 8.01                         | 0.01                            | 2.68                 | 102.5                |
|       | HP-5MS    | $y = 5.92E+07x - 1.65E+06$   | 0.9976                                              | 4.75                         | 1.85                         | 0.02                            | 4.74                 | 101.8                |
|       | DB-225MS  | $y = 7.47E+07x - 2.13E+06$   | 0.9936                                              | 6.26                         | 2.96                         | 0.04                            | 4.80                 | 103.8                |
|       | SLB-IL111 |                              |                                                     |                              |                              |                                 |                      |                      |
| C10:0 |           | $y = 2.40E+07x - 1.47E+06$   | 0.9438                                              | 9.66                         | 9.02                         | 0.01                            | 2.57                 | 102.9                |
|       | HP-5MS    | $y = 3.68E+07x - 1.07E+06$   | 0.9978                                              | 5.61                         | 1.72                         | 0.00                            | 4.71                 | 101.7                |
|       | DB-225MS  | $y = 4.53E+07x - 1.28E+06$   | 0.9941                                              | 6.24                         | 2.96                         | 0.02                            | 2.97                 | 103.6                |
|       | SLB-IL111 |                              |                                                     |                              |                              |                                 |                      |                      |
| C11:0 |           | $y = 5.08E+07x - 2.51E+06$   | 0.9508                                              | 7.16                         | 7.11                         | 0.00                            | 2.70                 | 102.2                |
|       | HP-5MS    | $y = 8.10E+07x - 2.38E+06$   | 0.9979                                              | 5.12                         | 1.98                         | 0.01                            | 4.52                 | 101.7                |
|       | DB-225MS  | $y = 9.82E+07x - 2.59E+06$   | 0.9945                                              | 5.88                         | 2.62                         | 0.01                            | 4.49                 | 103.4                |
|       | SLB-IL111 |                              |                                                     |                              |                              |                                 |                      |                      |
| C12:0 | HP-5MS    | $y = 2.81E+07x - 1.73E+06$   | 0.9439                                              | 8.77                         | 4.92                         | 0.00                            | 2.65                 | 102.8                |
|       | DB-225MS  | $y = 4.39E+07x - 1.29E+06$   | 0.9978                                              | 5.45                         | 1.51                         | 0.00                            | 4.42                 | 101.8                |
|       | SLB-IL111 |                              | 0.9943                                              | 5.99                         | 2.76                         | 0.01                            | 4.65                 | 103.4                |

|           |           |                            |        |      |      |      |      |       |
|-----------|-----------|----------------------------|--------|------|------|------|------|-------|
|           |           | $y = 5.35E+07x - 1.55E+06$ |        |      |      |      |      |       |
| C13:0     | HP-5MS    | $y = 5.85E+07x - 3.06E+06$ | 0.9501 | 6.70 | 6.05 | 0.00 | 2.48 | 102.1 |
|           | DB-225MS  | $y = 9.41E+07x - 2.70E+06$ | 0.9979 | 5.05 | 2.02 | 0.00 | 4.56 | 101.7 |
|           | SLB-IL111 | $y = 1.13E+08x - 3.02E+06$ | 0.9944 | 5.97 | 2.83 | 0.01 | 4.66 | 103.5 |
|           |           |                            |        |      |      |      |      |       |
| C14:1n-5t | HP-5MS    | $y = 8.72E+07x - 4.88E+06$ | 0.9501 | 6.01 | 6.87 | 0.00 | 2.70 | 103.1 |
|           | DB-225MS  | $y = 4.76E+07x - 1.47E+06$ | 0.9977 | 5.38 | 1.99 | 0.00 | 4.73 | 101.9 |
|           | SLB-IL111 | $y = 5.82E+07x - 1.68E+06$ | 0.9938 | 6.49 | 2.58 | 0.01 | 4.61 | 103.7 |
|           |           |                            |        |      |      |      |      |       |
| C14:1n-5  | HP-5MS    | $y = 8.72E+07x - 4.88E+06$ | 0.9504 | 5.92 | 6.56 | 0.00 | 2.70 | 102.3 |
|           | DB-225MS  | $y = 9.08E+07x - 2.54E+06$ | 0.9981 | 5.55 | 2.06 | 0.01 | 4.49 | 101.6 |
|           | SLB-IL111 | $y = 1.23E+08x - 5.31E+06$ | 0.9938 | 5.29 | 1.61 | 0.01 | 4.33 | 103.8 |
|           |           |                            |        |      |      |      |      |       |
| C14:0     | HP-5MS    | $y = 6.24E+07x - 2.93E+06$ | 0.9528 | 4.99 | 4.27 | 0.00 | 2.49 | 102.1 |
|           | DB-225MS  | $y = 9.41E+07x - 2.70E+06$ | 0.9980 | 5.34 | 2.01 | 0.01 | 4.56 | 101.7 |
|           | SLB-IL111 | $y = 1.20E+08x - 3.21E+06$ | 0.9943 | 5.94 | 2.96 | 0.01 | 4.61 | 103.5 |
|           |           |                            |        |      |      |      |      |       |
| C15:1t    | HP-5MS    | $y = 9.29E+07x - 5.62E+06$ | 0.9499 | 5.23 | 4.61 | 0.01 | 2.56 | 102.7 |
|           | DB-225MS  | $y = 4.95E+07x - 1.52E+06$ | 0.9972 | 6.95 | 2.34 | 0.01 | 4.43 | 102.0 |
|           | SLB-IL111 | $y = 6.09E+07x - 1.86E+06$ | 0.9939 | 6.27 | 3.09 | 0.01 | 4.50 | 103.6 |
|           |           |                            |        |      |      |      |      |       |
| C15:1n-5  | HP-5MS    | $y = 9.29E+07x - 5.62E+06$ | 0.9496 | 5.17 | 4.58 | 0.01 | 2.56 | 102.5 |
|           | DB-225MS  | $y = 9.67E+07x - 2.86E+06$ | 0.9979 | 4.26 | 1.94 | 0.00 | 4.37 | 101.8 |
|           | SLB-IL111 | $y = 1.53E+08x - 2.93E+06$ | 0.9964 | 7.88 | 2.83 | 0.01 | 5.06 | 102.8 |
|           |           |                            |        |      |      |      |      |       |
| C15:0     | HP-5MS    | $y = 6.53E+07x - 3.26E+06$ | 0.9538 | 6.98 | 5.15 | 0.00 | 2.48 | 102.2 |
|           | DB-225MS  | $y = 1.03E+08x - 3.21E+06$ | 0.9978 | 5.16 | 2.04 | 0.00 | 4.60 | 101.9 |
|           | SLB-IL111 | $y = 1.09E+08x - 6.99E+05$ | 0.9946 | 4.73 | 3.73 | 0.01 | 5.57 | 103.1 |
|           |           |                            |        |      |      |      |      |       |
| C16:1n-7  | HP-5MS    | $y = 6.01E+07x - 4.05E+06$ | 0.9519 | 8.25 | 5.15 | 0.00 | 2.78 | 102.2 |
|           | DB-225MS  | $y = 9.52E+07x - 2.79E+06$ | 0.9981 | 5.74 | 2.05 | 0.02 | 4.55 | 101.7 |
|           | SLB-IL111 | $y = 1.17E+08x - 3.21E+06$ | 0.9941 | 5.73 | 2.63 | 0.01 | 4.63 | 103.6 |
|           |           |                            |        |      |      |      |      |       |

|            |                                 |                             |        |      |      |      |      |       |
|------------|---------------------------------|-----------------------------|--------|------|------|------|------|-------|
| C16:1t     | HP-5MS<br>DB-225MS<br>SLB-IL111 | y = 3.45E+07x -<br>2.06E+06 | 0.9481 | 6.89 | 5.46 | 0.01 | 2.48 | 102.3 |
|            |                                 | y = 5.15E+07x -<br>1.58E+06 | 0.9979 | 5.95 | 1.99 | 0.01 | 4.66 | 101.8 |
|            |                                 | y = 6.36E+07x -<br>1.99E+06 | 0.9936 | 6.11 | 2.39 | 0.01 | 5.21 | 103.6 |
|            |                                 |                             |        |      |      |      |      |       |
| C16:0      | HP-5MS<br>DB-225MS<br>SLB-IL111 | y = 1.01E+08x -<br>4.77E+06 | 0.9573 | 6.52 | 5.07 | 0.00 | 2.60 | 101.9 |
|            |                                 | y = 1.61E+08x -<br>4.85E+06 | 0.9979 | 5.12 | 1.96 | 0.01 | 4.53 | 101.7 |
|            |                                 | y = 1.55E+08x -<br>4.31E+06 | 0.9922 | 4.44 | 2.34 | 0.02 | 5.75 | 104.0 |
|            |                                 |                             |        |      |      |      |      |       |
| C17:1n-7   | HP-5MS<br>DB-225MS<br>SLB-IL111 | y = 6.57E+07x -<br>4.96E+06 | 0.9489 | 7.38 | 5.11 | 0.00 | 2.55 | 102.8 |
|            |                                 | y = 1.00E+08x -<br>2.44E+06 | 0.9984 | 4.64 | 2.78 | 0.00 | 4.54 | 101.4 |
|            |                                 | y = 1.26E+08x -<br>3.72E+06 | 0.9935 | 5.05 | 2.64 | 0.01 | 4.79 | 103.9 |
|            |                                 |                             |        |      |      |      |      |       |
| C17:1t     | HP-5MS<br>DB-225MS<br>SLB-IL111 | y = 6.75E+07x -<br>3.66E+06 | 0.9554 | 8.36 | 4.83 | 0.00 | 2.55 | 102.1 |
|            |                                 | y = 1.04E+08x -<br>3.34E+06 | 0.9975 | 5.32 | 2.25 | 0.01 | 4.58 | 102.0 |
|            |                                 | y = 1.28E+08x -<br>3.71E+06 | 0.9938 | 6.17 | 2.78 | 0.01 | 4.92 | 103.7 |
|            |                                 |                             |        |      |      |      |      |       |
| C17:0      | HP-5MS<br>DB-225MS<br>SLB-IL111 | y = 1.04E+08x -<br>5.25E+06 | 0.9576 | 6.98 | 4.75 | 0.00 | 2.50 | 102.1 |
|            |                                 | y = 1.63E+08x -<br>5.08E+06 | 0.9977 | 5.05 | 2.11 | 0.01 | 4.57 | 101.8 |
|            |                                 | y = 2.01E+08x -<br>5.61E+06 | 0.9938 | 5.36 | 2.66 | 0.03 | 4.75 | 103.7 |
|            |                                 |                             |        |      |      |      |      |       |
| C18:3n-6   | HP-5MS<br>DB-225MS<br>SLB-IL111 | y = 1.03E+08x -<br>7.95E+06 | 0.9526 | 6.59 | 5.19 | 0.01 | 2.65 | 102.8 |
|            |                                 | y = 1.49E+08x -<br>5.11E+06 | 0.9975 | 3.42 | 2.26 | 0.02 | 4.88 | 101.9 |
|            |                                 | y = 1.85E+08x -<br>4.79E+05 | 0.9966 | 6.45 | 2.07 | 0.01 | 4.65 | 100.4 |
|            |                                 |                             |        |      |      |      |      |       |
| C18:2n-6tt | HP-5MS<br>DB-225MS<br>SLB-IL111 | y = 1.01E+08x -<br>6.54E+06 | 0.9571 | 5.58 | 4.51 | 0.00 | 2.62 | 102.6 |
|            |                                 | y = 1.02E+08x -<br>3.30E+06 | 0.9977 | 5.47 | 3.33 | 0.01 | 4.85 | 101.8 |
|            |                                 | y = 1.42E+08x -<br>6.01E+06 | 0.9918 | 6.23 | 4.00 | 0.02 | 6.19 | 104.3 |
|            |                                 |                             |        |      |      |      |      |       |
| C18:2n-6   | HP-5MS<br>DB-225MS<br>SLB-IL111 | y = 1.01E+08x -<br>6.54E+06 | 0.9570 | 5.48 | 4.99 | 0.00 | 2.60 | 102.5 |
|            |                                 | y = 1.53E+08x -<br>4.52E+06 | 0.9973 | 5.15 | 1.65 | 0.01 | 4.95 | 101.8 |
|            |                                 | y = 1.85E+08x -<br>4.73E+06 | 0.9948 | 5.80 | 2.66 | 0.02 | 4.76 | 103.0 |
|            |                                 |                             |        |      |      |      |      |       |
| C18:3n-3   | HP-5MS<br>DB-225MS<br>SLB-IL111 | y = 1.11E+08x -<br>6.81E+06 | 0.9554 | 6.53 | 5.56 | 0.01 | 3.62 | 102.6 |
|            |                                 |                             | 0.9973 | 5.03 | 2.27 | 0.01 | 4.88 | 102.1 |
|            |                                 |                             | 0.9786 | 2.69 | 1.22 | 0.01 | 5.00 | 105.0 |

|            |           |                            |        |      |      |      |      |       |
|------------|-----------|----------------------------|--------|------|------|------|------|-------|
|            |           | $y = 1.49E+08x - 5.20E+06$ |        |      |      |      |      |       |
|            |           | $y = 1.82E+08x - 7.10E+06$ |        |      |      |      |      |       |
| C18:1n-12  | HP-5MS    | $y = 2.00E+08x - 8.12E+06$ | 0.9689 | 9.59 | 4.27 | 0.01 | 2.08 | 102.0 |
|            | DB-225MS  | $y = 1.06E+08x + 4.19E+06$ | 0.9976 | 3.03 | 2.82 | 0.01 | 6.20 | 97.3  |
|            | SLB-IL111 | $y = 9.38E+07x + 5.28E+06$ | 0.9839 | 3.37 | 2.83 | 0.02 | 4.12 | 96.1  |
| C18:1n-7t  | HP-5MS    | $y = 2.72E+08x - 1.03E+07$ | 0.9615 | 9.45 | 5.23 | 0.01 | 2.87 | 102.5 |
|            | DB-225MS  | $y = 5.31E+07x - 2.34E+06$ | 0.9964 | 6.04 | 1.84 | 0.02 | 4.78 | 102.7 |
|            | SLB-IL111 | $y = 1.20E+08x - 1.61E+07$ | 0.9667 | 8.04 | 2.01 | 0.03 | 4.78 | 109.5 |
| C18:1n-7   | HP-5MS    | $y = 2.72E+08x - 1.03E+07$ | 0.9626 | 9.31 | 5.02 | 0.01 | 2.63 | 102.1 |
|            | DB-225MS  | $y = 1.03E+08x - 2.60E+06$ | 0.9980 | 5.08 | 1.65 | 0.01 | 4.59 | 101.5 |
|            | SLB-IL111 | $y = 2.40E+08x - 3.22E+07$ | 0.9667 | 8.04 | 2.01 | 0.03 | 4.78 | 109.5 |
| C18:1n-9t  | HP-5MS    | $y = 2.72E+08x - 1.03E+07$ | 0.9624 | 9.35 | 5.12 | 0.01 | 2.63 | 102.3 |
|            | DB-225MS  | $y = 1.59E+08x - 7.02E+06$ | 0.9964 | 6.04 | 1.84 | 0.02 | 4.78 | 102.7 |
|            | SLB-IL111 | $y = 1.47E+08x + 4.71E+06$ | 0.9998 | 5.70 | 3.23 | 0.03 | 3.59 | 100.2 |
| C18:1n-9   | HP-5MS    | $y = 2.72E+08x - 1.03E+07$ | 0.9626 | 9.31 | 5.02 | 0.01 | 2.63 | 102.1 |
|            | DB-225MS  | $y = 1.06E+08x - 4.68E+06$ | 0.9964 | 6.04 | 1.84 | 0.02 | 4.78 | 102.7 |
|            | SLB-IL111 | $y = 1.10E+08x + 1.04E+07$ | 0.9859 | 3.45 | 2.20 | 0.03 | 5.08 | 97.8  |
| C18:1n-12t | HP-5MS    | $y = 2.00E+08x - 8.12E+06$ | 0.9688 | 9.56 | 5.02 | 0.01 | 2.08 | 102.3 |
|            | DB-225MS  | $y = 1.06E+08x - 4.68E+06$ | 0.9964 | 6.04 | 1.84 | 0.02 | 4.78 | 100.4 |
|            | SLB-IL111 | $y = 7.55E+07x + 6.65E+06$ | 0.9852 | 8.24 | 2.92 | 0.02 | 2.34 | 100.3 |
| C18:0      | HP-5MS    | $y = 7.54E+07x - 4.54E+06$ | 0.9579 | 7.22 | 4.81 | 0.01 | 2.42 | 102.7 |
|            | DB-225MS  | $y = 1.14E+08x - 3.65E+06$ | 0.9971 | 5.29 | 3.19 | 0.01 | 4.68 | 102.1 |
|            | SLB-IL111 | $y = 1.41E+08x - 4.74E+06$ | 0.9936 | 5.05 | 2.66 | 0.04 | 4.66 | 103.9 |
| C19:1n-12t | HP-5MS    | $y = 1.24E+07x - 1.88E+06$ | 0.9767 | 9.82 | 7.17 | 0.01 | 3.71 | 108.8 |
|            | DB-225MS  | $y = 5.41E+07x - 2.05E+06$ | 0.9952 | 8.75 | 1.88 | 0.01 | 5.29 | 102.9 |
|            | SLB-IL111 |                            | 0.9920 | 6.51 | 2.06 | 0.02 | 4.87 | 104.8 |

|           |           |                            |        |      |      |      |      |       |
|-----------|-----------|----------------------------|--------|------|------|------|------|-------|
|           |           | $y = 5.17E+07x - 1.67E+06$ |        |      |      |      |      |       |
| C19:1n-9t | HP-5MS    | $y = 9.59E+07x - 6.78E+06$ | 0.9584 | 6.36 | 4.93 | 0.01 | 2.51 | 102.4 |
|           | DB-225MS  | $y = 1.11E+08x - 2.91E+06$ | 0.9983 | 3.42 | 4.14 | 0.01 | 7.88 | 101.5 |
|           | SLB-IL111 | $y = 1.12E+08x - 2.99E+06$ | 0.9953 | 5.52 | 2.43 | 0.02 | 4.78 | 103.0 |
|           |           |                            |        |      |      |      |      |       |
| C20:4n-6  | HP-5MS    | $y = 1.12E+08x - 1.02E+07$ | 0.9550 | 8.54 | 5.46 | 0.00 | 2.71 | 103.5 |
|           | DB-225MS  | $y = 1.54E+08x - 6.81E+06$ | 0.9963 | 8.16 | 2.50 | 0.01 | 5.76 | 102.8 |
|           | SLB-IL111 | $y = 1.89E+08x - 5.92E+06$ | 0.9952 | 7.13 | 3.61 | 0.01 | 4.23 | 103.4 |
|           |           |                            |        |      |      |      |      |       |
| C20:5n-3  | HP5 -MS   | $y = 7.73E+07x - 5.79E+06$ | 0.9555 | 8.55 | 5.21 | 0.00 | 2.57 | 102.5 |
|           | DB-225MS  | $y = 9.88E+07x - 4.99E+06$ | 0.9939 | 4.72 | 2.06 | 0.02 | 5.71 | 103.3 |
|           | SLB-IL111 | $y = 1.24E+08x - 3.64E+06$ | 0.9938 | 6.12 | 3.22 | 0.00 | 3.81 | 102.5 |
|           |           |                            |        |      |      |      |      |       |
| C20:3n-6  | HP-5MS    | $y = 7.37E+07x - 5.91E+06$ | 0.9533 | 8.59 | 5.45 | 0.00 | 2.50 | 103.1 |
|           | DB-225MS  | $y = 1.01E+08x - 4.83E+06$ | 0.9953 | 6.09 | 2.09 | 0.01 | 6.11 | 103.2 |
|           | SLB-IL111 | $y = 1.30E+08x - 4.33E+06$ | 0.9948 | 5.30 | 2.68 | 0.01 | 2.04 | 103.4 |
|           |           |                            |        |      |      |      |      |       |
| C20:2n-6  | HP-5MS    | $y = 1.06E+08x - 7.27E+06$ | 0.9619 | 9.76 | 5.43 | 0.00 | 2.53 | 102.5 |
|           | DB-225MS  | $y = 1.55E+08x - 6.14E+06$ | 0.9960 | 6.16 | 1.82 | 0.01 | 5.10 | 102.6 |
|           | SLB-IL111 | $y = 1.98E+08x - 7.48E+06$ | 0.9939 | 6.86 | 2.82 | 0.02 | 4.78 | 103.7 |
|           |           |                            |        |      |      |      |      |       |
| C20:1n-9  | HP-5MS    | $y = 1.45E+08x - 7.45E+06$ | 0.9657 | 8.62 | 4.98 | 0.00 | 2.43 | 101.9 |
|           | DB-225MS  | $y = 1.00E+08x - 2.18E+06$ | 0.9957 | 5.04 | 2.91 | 0.01 | 7.10 | 102.5 |
|           | SLB-IL111 | $y = 1.18E+08x - 4.91E+06$ | 0.9835 | 5.33 | 3.05 | 0.02 | 5.92 | 104.9 |
|           |           |                            |        |      |      |      |      |       |
| C20:3n-3  | HP5 -MS   | $y = 1.45E+08x - 7.45E+06$ | 0.9652 | 8.55 | 5.02 | 0.00 | 2.43 | 102.1 |
|           | DB-225MS  | $y = 1.07E+08x - 3.90E+06$ | 0.9972 | 5.43 | 2.68 | 0.01 | 3.83 | 102.3 |
|           | SLB-IL111 | $y = 1.26E+08x - 3.95E+06$ | 0.9952 | 7.13 | 3.61 | 0.01 | 4.23 | 103.4 |
|           |           |                            |        |      |      |      |      |       |
| C20:1n-9t | HP-5MS    | $y = 4.03E+07x - 2.59E+06$ | 0.9543 | 9.92 | 5.09 | 0.00 | 2.48 | 102.4 |
|           | DB-225MS  | $y = 6.35E+07x - 3.48E+06$ | 0.9946 | 6.49 | 5.30 | 0.04 | 7.86 | 102.7 |
|           | SLB-IL111 | $y = 6.29E+07x - 1.16E+06$ | 0.9976 | 6.45 | 2.07 | 0.01 | 4.50 | 101.8 |
|           |           |                            |        |      |      |      |      |       |

|           |                                  |                             |        |      |      |      |      |       |
|-----------|----------------------------------|-----------------------------|--------|------|------|------|------|-------|
| C20:0     | HP-5MS<br>DB-225MS<br>SLB-IL111  | y = 8.02E+07x -<br>5.01E+06 | 0.9591 | 9.41 | 5.02 | 0.00 | 2.48 | 102.5 |
|           |                                  | y = 1.16E+08x -<br>3.74E+06 | 0.9969 | 3.22 | 1.45 | 0.02 | 4.01 | 102.0 |
|           |                                  | y = 1.46E+08x -<br>5.77E+06 | 0.9941 | 6.07 | 2.60 | 0.03 | 4.63 | 103.7 |
|           |                                  |                             |        |      |      |      |      |       |
| C21:0     | HP-5MS<br>DB-225MS<br>SLB-IL111  | y = 1.53E+08x -<br>1.36E+07 | 0.9578 | 5.62 | 5.37 | 0.00 | 2.66 | 103.5 |
|           |                                  | y = 1.07E+08x -<br>3.90E+06 | 0.9972 | 5.43 | 2.68 | 0.01 | 3.83 | 102.3 |
|           |                                  | y = 1.33E+08x -<br>2.17E+06 | 0.9715 | 4.61 | 4.15 | 0.03 | 3.40 | 100.8 |
|           |                                  |                             |        |      |      |      |      |       |
| C22:5n-6  | HP5 -MS<br>DB-225MS<br>SLB-IL111 | y = 7.87E+07x -<br>8.21E+06 | 0.9606 | 9.61 | 5.02 | 0.00 | 2.57 | 101.8 |
|           |                                  | y = 1.13E+08x -<br>8.74E+06 | 0.9871 | 8.97 | 3.17 | 0.01 | 6.81 | 105.3 |
|           |                                  | y = 1.27E+08x -<br>5.51E+06 | 0.9945 | 6.21 | 3.03 | 0.01 | 3.93 | 103.7 |
|           |                                  |                             |        |      |      |      |      |       |
| C22:6n-3  | HP5 -MS<br>DB-225MS<br>SLB-IL111 | y = 8.05E+07x -<br>6.82E+06 | 0.9546 | 9.49 | 5.43 | 0.00 | 2.69 | 103.0 |
|           |                                  | y = 8.94E+07x -<br>5.93E+06 | 0.9898 | 6.11 | 3.12 | 0.01 | 4.58 | 104.6 |
|           |                                  | y = 1.22E+08x -<br>6.10E+06 | 0.9936 | 6.77 | 3.41 | 0.01 | 4.31 | 103.9 |
|           |                                  |                             |        |      |      |      |      |       |
| C22:4n-6  | HP5 -MS<br>DB-225MS<br>SLB-IL111 | y = 7.66E+07x -<br>6.44E+06 | 0.9568 | 7.15 | 5.35 | 0.00 | 2.48 | 103.2 |
|           |                                  | y = 9.93E+07x -<br>6.61E+06 | 0.9881 | 7.75 | 3.76 | 0.01 | 6.87 | 104.9 |
|           |                                  | y = 1.26E+08x -<br>5.29E+06 | 0.9947 | 6.19 | 3.28 | 0.01 | 4.07 | 103.6 |
|           |                                  |                             |        |      |      |      |      |       |
| C22:5n-3  | HP5 -MS<br>DB-225MS<br>SLB-IL111 | y = 8.09E+07x -<br>6.01E+06 | 0.9538 | 9.02 | 5.46 | 0.00 | 2.82 | 102.5 |
|           |                                  | y = 9.16E+07x -<br>5.67E+06 | 0.9909 | 7.36 | 3.62 | 0.01 | 4.71 | 104.1 |
|           |                                  | y = 1.24E+08x -<br>5.96E+06 | 0.9940 | 6.42 | 3.21 | 0.01 | 3.96 | 103.8 |
|           |                                  |                             |        |      |      |      |      |       |
| C22:2n-6  | HP5 -MS<br>DB-225MS<br>SLB-IL111 | y = 7.15E+07x -<br>6.48E+06 | 0.9572 | 8.25 | 5.81 | 0.00 | 2.58 | 103.5 |
|           |                                  | y = 9.88E+07x -<br>3.57E+06 | 0.9960 | 6.73 | 3.57 | 0.01 | 5.31 | 102.6 |
|           |                                  | y = 1.28E+08x -<br>6.04E+06 | 0.9930 | 7.05 | 3.09 | 0.01 | 4.60 | 104.1 |
|           |                                  |                             |        |      |      |      |      |       |
| C22:1n-9  | HP-5MS<br>DB-225MS<br>SLB-IL111  | y = 7.82E+07x -<br>4.47E+06 | 0.9632 | 8.78 | 5.14 | 0.00 | 2.44 | 101.8 |
|           |                                  | y = 9.23E+07x -<br>1.67E+05 | 0.9981 | 8.32 | 8.51 | 0.01 | 5.10 | 99.7  |
|           |                                  | y = 1.30E+08x -<br>4.33E+06 | 0.9948 | 5.30 | 2.68 | 0.02 | 2.04 | 103.4 |
|           |                                  |                             |        |      |      |      |      |       |
| C22:1n-9t | HP-5MS<br>DB-225MS<br>SLB-IL111  | y = 4.39E+07x -<br>2.83E+06 | 0.9467 | 9.04 | 5.36 | 0.00 | 2.37 | 102.2 |
|           |                                  |                             | 0.9808 | 4.80 | 7.50 | 0.03 | 5.60 | 95.1  |
|           |                                  |                             | 0.9903 | 5.30 | 2.68 | 0.05 | 6.40 | 104.2 |

|            |           | $y = 6.50E+07x - 4.77E+06$   |                                                             |                              |                  |                                 |                      |                      |
|------------|-----------|------------------------------|-------------------------------------------------------------|------------------------------|------------------|---------------------------------|----------------------|----------------------|
|            |           | $y = 6.57E+07x - 2.93E+06$   |                                                             |                              |                  |                                 |                      |                      |
| C22:0      | HP-5MS    | $y = 4.17E+07x - 3.49E+06$   | 0.9457                                                      | 9.89                         | 5.54             | 0.00                            | 2.46                 | 103.3                |
|            | DB-225MS  | $y = 5.96E+07x - 2.62E+06$   | 0.9926                                                      | 8.95                         | 2.70             | 0.01                            | 4.61                 | 103.7                |
|            | SLB-IL111 | $y = 6.87E+07x - 3.07E+06$   | 0.9952                                                      | 6.18                         | 2.98             | 0.03                            | 4.06                 | 103.6                |
|            |           |                              |                                                             |                              |                  |                                 |                      |                      |
| C23:0      | HP-5MS    | $y = 8.23E+07x - 7.96E+06$   | 0.9430                                                      | 9.98                         | 5.59             | 0.00                            | 2.56                 | 103.8                |
|            | DB-225MS  | $y = 1.02E+08x - 2.97E+06$   | 0.9925                                                      | 8.78                         | 2.59             | 0.02                            | 6.49                 | 103.1                |
|            | SLB-IL111 | $y = 1.26E+08x - 3.92E+06$   | 0.9967                                                      | 7.13                         | 3.61             | 0.03                            | 3.87                 | 102.8                |
|            |           |                              |                                                             |                              |                  |                                 |                      |                      |
| C24:1n-9   | HP5 -MS   | $y = 3.82E+07x - 5.47E+06$   | 0.9012                                                      | 8.33                         | 6.64             | 0.00                            | 3.16                 | 107.9                |
|            | DB-225MS  | $y = 4.98E+07x - 1.06E+06$   | 0.9985                                                      | 7.56                         | 1.65             | 0.01                            | 5.53                 | 101.5                |
|            | SLB-IL111 | $y = 6.57E+07x - 5.58E+06$   | 0.9818                                                      | 6.19                         | 3.01             | 0.02                            | 3.78                 | 108.0                |
|            |           |                              |                                                             |                              |                  |                                 |                      |                      |
| C24:0      | HP5 -MS   | $y = 4.15E+07x - 5.28E+06$   | 0.9148                                                      | 7.46                         | 5.71             | 0.00                            | 3.19                 | 106.3                |
|            | DB-225MS  | $y = 5.35E+07x - 1.59E+06$   | 0.9971                                                      | 2.89                         | 2.41             | 0.01                            | 2.99                 | 102.6                |
|            | SLB-IL111 | $y = 6.09E+07x - 2.87E+06$   | 0.9920                                                      | 6.24                         | 3.05             | 0.02                            | 4.26                 | 104.5                |
|            |           |                              |                                                             |                              |                  |                                 |                      |                      |
|            |           |                              |                                                             |                              |                  |                                 |                      |                      |
| FAME       | GC column | Calibration curve estimation | Coefficient of determination (R <sup>2</sup> ) <sup>e</sup> | Repeatability                |                  | System suitability <sup>h</sup> |                      | Average accuracy (%) |
|            |           |                              |                                                             | Intraday <sup>f</sup> (%RSD) | Interdays (%RSD) | Retention time (%RSD)           | Concentration (%RSD) |                      |
| C18:2n-6cc | HP-5MS    | $y = 6.59E+06x - 1,13E+06$   | 0.9174                                                      | 4.63                         | 3.96             | 0.02                            | 2.64                 | 112.7                |
|            | DB-225MS  | $y = 2,36E+07x + 4,80E+05$   | 0.9972                                                      | 1.27                         | 1.73             | 0.01                            | 3.54                 | 117.1                |
|            | SLB-IL111 | $y = 2.77E+09x - 1.37E+05$   | 0.9772                                                      | 0.64                         | 1.62             | 0.00                            | 3.22                 | 98.1                 |
|            |           |                              |                                                             |                              |                  |                                 |                      |                      |
| C18:2n-6tt | HP5 -MS   | $y = 1.02E+08x - 7.73E+06$   | 0.9219                                                      | 1.61                         | 2.54             | 0.02                            | 2.26                 | 100.8                |
|            | DB-225MS  | $y = 1.16E+08x + 1.29E+06$   | 0.9968                                                      | 1.46                         | 1.01             | 0.02                            | 3.30                 | 110.6                |
|            | SLB-IL111 | $y = 3.03E+09x + 7.54E+04$   | 0.9778                                                      | 0.88                         | 1.32             | 0.01                            | 2.64                 | 100.5                |
|            |           |                              |                                                             |                              |                  |                                 |                      |                      |
| C18:2n-6tc | HP5 -MS   | $y = 1.02E+08x - 7.73E+06$   | 0.9219                                                      | 1.61                         | 2.54             | 0.01                            | 2.52                 | 92.2                 |
|            | DB-225MS  | $y = 5.11E+07x + 7.82E+05$   | 0.9957                                                      | 1.67                         | 1.56             | 0.01                            | 4.53                 | 114.0                |
|            | SLB-IL111 |                              | 0.9787                                                      | 1.14                         | 1.46             | 0.00                            | 2.45                 | 100.8                |

|            |           |                            |        |      |      |      |      |       |
|------------|-----------|----------------------------|--------|------|------|------|------|-------|
|            |           | $y = 3.28E+09x - 6.41E+05$ |        |      |      |      |      |       |
|            |           | $y = 3.36E+07x - 1.63E+06$ |        |      |      |      |      |       |
| C18:2n-6ct | HP5 –MS   | $y = 4.71E+07x + 9.60E+05$ | 0.9332 | 2.29 | 2.61 | 0.01 | 3.06 | 101.3 |
|            | DB-225MS  |                            | 0.9972 | 1.27 | 1.73 | 0.01 | 3.54 | 117.1 |
|            | SLB-IL111 | $y = 3.38E+09x - 4.66E+05$ | 0.9765 | 0.94 | 1.89 | 0.00 | 2.46 | 100.5 |

n.d. not detected. a. Calibration range was from 0.1 mg mL<sup>-1</sup> to 1 mg mL<sup>-1</sup>. b. The value of %RSD established from three (n = 3) complete analyses of each sample in a day. The concentration was 0.75 mg mL<sup>-1</sup>. c. The value of %RSD established from three complete analyses repeated tree consecutive days (n = 9). The concentration range was 0.75 mg mL<sup>-1</sup>. d. The value of %RSD established from seven (n = 7) complete analyses of each sample in a day. The concentration was 0.5 mg mL<sup>-1</sup>. e. Calibration range was from 0.008 mg mL<sup>-1</sup> to 0.08 mg mL<sup>-1</sup>. f. The value of %RSD established from three (n = 3) complete analyses of each sample in a day. The concentration was 0.06 mg mL<sup>-1</sup>. g. The value of %RSD established from three complete analyses repeated tree consecutive days (n = 9). The concentration was 0.06 mg mL<sup>-1</sup>. h. The value of %RSD established from seven (n = 7) complete analyses of each sample in a day. The concentration was 0.04 mg mL<sup>-1</sup>.