**Separation and Purification of Resveratrol from Polygonum Cuspidatum by Macroporous Adsorption Resin Mixed-bed Techology**

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Supplement table are shown in as follows:

**Supplement Table I** The physical properties of MAR

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| MAR | Polarity | Structure | Specific surface area (m2 /g) | Average pore size (nm) | Moisturecontent (%) |
| LZ-49 | Non | SDVB | ≥850 | 15.0 | 67 |
| LZ-50 | Non | SDVB | ≥900 | 15.0 | 66 |
| LZ-52 | Non | SDVB | / | / | 63 |
| LZ-53 | Middle | SDVB | 577 | 10.0 | 72 |
| LZ-58 | Middle | Methacrylic | 754 | 7.3 | 72 |
| LZ-60 | Middle | Methacrylic | 575 | 7.4 | 63 |
| LZ-61 | Middle | SDVB | 700 | 16.5 | 72 |
| LZ-62 | Middle | SDVB | >1000 | 5.4 | 62 |
| LZ-63 | Middle | SDVB | ≥500 | 24.0 | 66 |
| LZ-64 | Non | SDVB | 993 | 6.9 | 66 |
| LZ-65 | Middle | Methacrylic | / | / | 72 |
| LZ-68 | Middle | / | / | 5.6 | 71 |
| LZ-72 | Middle | SDVB | 658 | 7.2 | 49 |
| LZ-73 | Non | SDVB | 350 | 18.0 | 54 |
| LZ-74 | Non | SDVB | ≥900 | 15.0 | 58 |
| LZ-75 | Strong | SDVB | 1000 | 9.0 | 61 |
| LZ-76 | Non | SDVB | 650-700 | 8.5 | 65 |
| LZ-77 | Non | SDVB | 800-870 | 5.5 | 58 |
| LZ-78 | Middle | SDVB | 500-550 | 7.5 | 61 |
| LZ-79 | Middle | SDVB | 500-550 | 11.5 | 68 |
| LZ-80 | Strong | SDVB | 500-600 | 7.7 | 70 |
| LZ-82 | Middle | SDVB | 650-700 | 8.5-9.0 | 64 |
| LZ-88 | Weak | SDVB | 400 | 20.0 | 64 |
| LZ-90 | Middle | Methacrylic | 450 | 14.5 | 70 |
| LZ-91 | Middle | Methacrylic | 660 | 9.0 | 69 |
| LZ-94 | Middle | SDVB | 600-700 | 7.0 | 56 |
| LZ-103 | Strong | / | / | / | 56 |
| LZ-105 | Strong | SDVB | 500-600 | 8.0 | 70 |
| LZ-106 | / | / | / | / | 56 |
| LZ-107 | / | / | / | / | 66 |
| LZ-111 | Weak | SDVB | / | / | 60 |
| LZ-114 | Strong | SDVB | ≥650 | 8.0 | 62 |

**Supplement Table II** The separation and purification performance of each MAR on resveratrol

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| MAR | *Qa* (mg/g) | *F* (%) | *Qd* (mg/g) | *D* (%) | *SC* (%) |
| LZ-94 | 23.23 | 94.50 | 14.23 | 61.25 | 74.55 |
| LZ-78 | 23.37 | 95.09 | 13.91 | 59.50 | 73.74 |
| LZ-76 | 21.56 | 97.73 | 13.10 | 55.76 | 72.55 |
| LZ-64 | 23.05 | 93.78 | 13.07 | 56.71 | 71.54 |
| LZ-68 | 23.95 | 97.44 | 12.53 | 52.34 | 70.38 |
| LZ-77 | 22.99 | 93.54 | 12.36 | 53.76 | 69.67 |
| LZ-53 | 23.25 | 94.60 | 11.39 | 48.97 | 67.22 |
| LZ-62 | 22.96 | 93.41 | 11.28 | 49.14 | 66.85 |
| LZ-79 | 21.11 | 85.90 | 11.41 | 54.05 | 66.79 |
| LZ-82 | 22.17 | 90.21 | 11.34 | 51.14 | 66.77 |
| LZ-91 | 20.61 | 83.88 | 11.33 | 54.96 | 66.53 |
| LZ-111 | 21.73 | 88.43 | 11.06 | 50.91 | 65.92 |
| LZ-88 | 22.92 | 93.26 | 10.92 | 47.64 | 65.89 |
| LZ-80 | 20.11 | 81.83 | 11.09 | 55.15 | 65.82 |
| LZ-72 | 20.44 | 83.18 | 11.00 | 53.83 | 65.57 |
| LZ-74 | 22.51 | 91.59 | 10.81 | 48.02 | 65.45 |
| LZ-49 | 22.68 | 92.29 | 10.77 | 47.49 | 65.41 |
| LZ-90 | 20.47 | 83.32 | 10.91 | 53.26 | 65.28 |
| LZ-50 | 23.08 | 93.94 | 10.56 | 45.74 | 65.02 |
| LZ-60 | 19.10 | 77.73 | 10.66 | 55.81 | 64.58 |
| LZ-106 | 22.40 | 91.15 | 10.39 | 46.37 | 64.28 |
| LZ-61 | 15.47 | 62.94 | 10.08 | 65.13 | 64.25 |
| LZ-114 | 20.27 | 82.49 | 10.50 | 51.79 | 64.07 |
| LZ-73 | 20.37 | 82.90 | 10.48 | 51.46 | 64.04 |
| LZ-65 | 21.32 | 86.73 | 10.19 | 47.81 | 63.38 |
| LZ-52 | 18.92 | 76.98 | 10.26 | 54.25 | 63.34 |
| LZ-58 | 13.30 | 54.11 | 9.13 | 68.68 | 62.85 |
| LZ-75 | 23.31 | 94.86 | 9.53 | 40.87 | 62.47 |
| LZ-107 | 22.75 | 92.56 | 9.40 | 41.32 | 61.82 |
| LZ-105 | 20.94 | 85.19 | 9.50 | 45.36 | 61.29 |
| LZ-103 | 21.02 | 85.53 | 9.48 | 45.10 | 61.27 |
| LZ-63 | 6.45 | 26.24 | 5.21 | 80.80 | 58.98 |

**Supplement Table III** The separation and purification effect of MAR mixed bed (two resins) on resveratrol

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| MAR | *Qa* (mg/g) | *F* (%) | *Qd* (mg/g) | *D* (%) | *SC* (%) |
| LZ-94 | 22.92 | 92.05 | 13.79 | 60.18 | 72.93 |
| LZ-94+ LZ-78 | 23.84 | 95.74 | 15.67 | 65.74 | 77.74 |
| LZ-94+ LZ-64 | 23.37 | 93.85 | 15.05 | 64.38 | 76.16 |
| LZ-94+ LZ-76 | 23.23 | 93.30 | 14.31 | 61.61 | 74.28 |
| LZ-94+ LZ-77 | 22.82 | 91.65 | 14.24 | 62.39 | 74.10 |
| LZ-94+ LZ-68 | 23.29 | 93.53 | 14.17 | 60.86 | 73.93 |
| LZ-94+ LZ-53 | 23.34 | 93.76 | 13.94 | 59.72 | 73.33 |
| LZ-78 | 21.62 | 86.83 | 13.76 | 63.63 | 72.91 |
| LZ-78+ LZ-63 | 23.50 | 94.38 | 15.45 | 65.72 | 77.19 |
| LZ-78+ LZ-64 | 22.55 | 90.54 | 14.90 | 66.07 | 75.86 |
| LZ-78+ LZ-68 | 21.98 | 88.26 | 14.50 | 65.99 | 74.90 |
| LZ-78+ LZ-77 | 22.88 | 91.90 | 14.40 | 62.92 | 74.51 |
| LZ-78+ LZ-53 | 22.93 | 92.09 | 14.38 | 62.69 | 74.45 |

**Supplement Table IV** The separation and purification effect of MAR mixed bed (three resins) on resveratrol

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| MAR | *Qa* (mg/g) | *F* (%) | *Qd* (mg/g) | *D* (%) | *SC* (%) |
| LZ-94+ LZ-78 | 19.78 | 91.92 | 12.75 | 64.44 | 75.43 |
| LZ-94+ LZ-78+ LZ-76 | 20.09 | 93.38 | 13.36 | 66.50 | 77.25 |
| LZ-94+ LZ-78+ LZ-64 | 19.61 | 91.12 | 12.78 | 65.17 | 75.55 |
| LZ-94+ LZ-78+ LZ-68 | 19.73 | 91.68 | 12.65 | 64.10 | 75.13 |
| LZ-94+ LZ-78+ LZ-77 | 20.21 | 93.93 | 12.61 | 62.36 | 74.99 |
| LZ-94+ LZ-78+ LZ-53 | 19.27 | 89.54 | 12.43 | 64.51 | 74.52 |
| LZ-78+ LZ-76 | 19.54 | 90.81 | 11.22 | 57.43 | 70.78 |
| LZ-78+ LZ-76+ LZ-64 | 20.42 | 94.88 | 12.75 | 62.46 | 75.43 |
| LZ-78+ LZ-76+ LZ-77 | 17.30 | 80.41 | 10.01 | 57.87 | 66.89 |
| LZ-78+ LZ-76+ LZ-68 | 17.51 | 81.35 | 9.28 | 53.00 | 64.34 |
| LZ-78+ LZ-76+ LZ-53 | 17.02 | 80.87 | 9.76 | 56.35 | 66.16 |

**Supplement Table V** The separation and purification effect of MAR mixed bed (four resins) on resveratrol

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| MAR | *Qa* (mg/g) | *F* (%) | *Qd* (mg/g) | *D* (%) | *SC* (%) |
| LZ-94+ LZ-78+ LZ-76 | 20.71 | 83.37 | 14.08 | 67.97 | 74.13 |
| LZ-78+ LZ-76+ LZ-64 | 20.55 | 82.66 | 13.47 | 65.56 | 72.40 |
| LZ-94+ LZ-78+ LZ-76+ LZ-64 | 20.74 | 83.50 | 12.97 | 62.57 | 70.94 |
| LZ-94+ LZ-78+ LZ-76+ LZ-77 | 20.11 | 80.69 | 12.46 | 61.97 | 69.46 |
| LZ-78+ LZ-76+ LZ-64+ LZ-77 | 20.26 | 81.35 | 12.45 | 61.44 | 69.40 |
| LZ-94+ LZ-78+ LZ-76+ LZ-68 | 20.49 | 82.37 | 12.23 | 59.71 | 68.77 |

**Supplement Table VI** The separation and purification effect of MAR mixed bed in different mass proportions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| LZ-94+ LZ-78+ LZ-76 | *Qa* (mg/g) | *F* (%) | *Qd* (mg/g) | *D* (%) | *SC* (%) |
| 1/1/1 | 23.98 | 97.21 | 16.23 | 67.92 | 79.63 |
| 2/1/2 | 23.82 | 96.92 | 15.63 | 65.62 | 78.14 |
| 2/2/1 | 23.66 | 96.28 | 15.12 | 63.91 | 76.86 |
| 1/2/2 | 22.59 | 91.93 | 14.91 | 65.99 | 76.37 |
| 1/1/2 | 22.51 | 91.59 | 14.35 | 63.76 | 74.90 |
| 2/1/1 | 22.23 | 90.46 | 14.26 | 64.15 | 74.68 |
| 1/2/1 | 23.49 | 95.61 | 13.53 | 57.58 | 72.79 |