**Table S1 Contents of free amino acid components** (mg·kg-1 DW)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Categories of free amino acids | 24 day | 28 day | 32 day | 36 day | 40 day |
| CK | ALA100 | ALA200 | CK | ALA100 | ALA200 | CK | ALA100 | ALA200 | CK | ALA100 | ALA200 | CK | ALA100 | ALA200 |
| Threonine | 69.81  | 65.64  | 69.30  | 58.14  | 61.48  | 56.80  | 78.74  | 21.77  | 36.22  | 48.83  | 48.12  | 82.08  | 122.29  | 123.34  | 246.92  |
| Phenylalanine | 45.52  | 41.83  | 49.21  | 56.36  | 66.83  | 53.38  | 51.89  | 20.56  | 28.10  | 42.34  | 47.81  | 84.74  | 127.34  | 129.69  | 253.58  |
| Tryptophan | 140.78  | 164.98  | 160.41  | 128.28  | 184.14  | 162.07  | 101.46  | 72.70  | 85.96  | 89.49  | 121.86  | 139.17  | 153.87  | 176.60  | 213.26  |
| Leucine | 75.45  | 85.33  | 82.77  | 64.61  | 81.17  | 74.44  | 42.52  | 50.13  | 65.04  | 43.70  | 50.53  | 64.32  | 73.13  | 71.88  | 92.78  |
| Isoleucine | 53.17  | 55.00  | 48.90  | 62.33  | 80.00  | 90.57  | 72.43  | 58.22  | 53.80  | 37.87  | 33.89  | 37.52  | 101.65  | 122.73  | 130.35  |
| Methionine | 3.14  | 3.36  | 3.50  | 4.14  | 4.86  | 6.00  | 6.63  | 7.04  | 4.21  | 5.25  | 5.37  | 5.82  | 6.05  | 6.79  | 8.46  |
| Tyrosine | 93.61  | 91.64  | 99.49  | 76.94  | 99.97  | 66.15  | 56.42  | 21.54  | 30.88  | 28.80  | 45.15  | 55.75  | 103.39  | 175.64  | 314.73  |
| Valine | 10.29  | 12.33  | 11.39  | 12.79  | 17.33  | 17.22  | 18.31  | 17.22  | 22.22  | 20.28  | 19.00  | 30.04  | 22.62  | 32.97  | 37.47  |
| Alanine | 268.35  | 260.33  | 282.12  | 274.60  | 285.33  | 298.79  | 352.01  | 341.65  | 435.35  | 601.01  | 619.21  | 705.93  | 706.48  | 755.27  | 774.80  |
| Glycine | 2.42  | 2.68  | 3.30  | 1.42  | 1.76  | 1.63  | 3.72  | 4.28  | 4.35  | 6.76  | 6.37  | 8.41  | 6.95  | 7.42  | 9.37  |
| Serine | 45.21  | 53.25  | 48.21  | 36.88  | 44.91  | 38.21  | 67.55  | 37.80  | 38.98  | 43.43  | 39.77  | 33.84  | 44.98  | 35.24  | 29.76  |
| Glutamic acid | 4969.20  | 5154.82  | 4876.33  | 5434.20  | 5711.49  | 6562.99  | 6936.61  | 8520.56  | 12712.49  | 14020.89  | 11160.68  | 16283.41  | 10336.73  | 6522.51  | 5696.97  |
| Aspartic acid | 1284.30  | 1197.00  | 1446.40  | 1450.96  | 1863.67  | 1779.73  | 1845.02  | 2292.50  | 2504.67  | 2345.55  | 1743.85  | 1266.72  | 1452.31  | 774.98  | 785.69  |
| Arginine | 37.08  | 40.40  | 33.18  | 48.75  | 52.90  | 45.68  | 76.15  | 83.77  | 93.62  | 187.10  | 201.09  | 248.56  | 223.33  | 227.62  | 314.34  |
| Cystine | 4.29  | 4.01  | 4.49  | 5.13  | 4.84  | 6.15  | 16.04  | 17.14  | 22.18  | 10.81  | 10.59  | 5.19  | 4.52  | 4.42  | 3.57  |
| Glutamine | 88.52  | 92.89  | 98.13  | 101.02  | 184.55  | 206.47  | 340.76  | 248.73  | 269.92  | 415.83  | 290.13  | 155.98  | 308.21  | 223.36  | 146.11  |