Table S1 The color of fermented goat milk with and without kiwifruit.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sample | Color | | | |
| L\* | a\* | b\* | ΔE |
| GM | 82.65±0.07c | -1.81±0.01a | 4.77±0.02a |  |
| FGMC | 82.61±2.27c | -2.03±0.05de | 4.09±0.37bcdef | 1.93±0.69ef |
| L126 | 85.61±0.26a | -1.98±0.04bcd | 4±0.07bcdefg | 3.06±0.23ab |
| L142 | 85.61±0.26a | -2.02±0.02cde | 4.44±0.03ab | 2.97±0.06abc |
| L143 | 85.7±0.34a | -2.05±0.03e | 4.3±0.06bcd | 3.09±0.32a |
| L145 | 84.43±0.36ab | -2.01±0.05cde | 4.18±0.23bcde | 1.89±0.41f |
| L146 | 85.12±0.65ab | -2±0.05cde | 4.28±0.15bcd | 2.53±0.61abcdef |
| L147 | 85.05±0.68ab | -2.06±0.05e | 4.41±0.09abc | 2.44±0.66abcdef |
| L148 | 85±0.74ab | -1.96±0.04bc | 3.92±0.52defg | 2.58±0.44abcde |
| L150 | 85±0.74ab | -1.93±0.06b | 4.29±0.14bcd | 2.73±0.19abcd |
| K126 | 84.96±0.08ab | -2.06±0.01e | 4.02±0.02bcdefg | 2.44±0.07abcdef |
| K142 | 84.78±0.09ab | -2.05±0.02e | 3.7±0.06fgh | 2.39±0.06cdef |
| K143 | 84.92±0.09ab | -2.02±0.01cde | 3.96±0.02cdefg | 2.41±0.09bcdef |
| K145 | 84.18±1.1ab | -2.06±0.02e | 3.21±0.71i | 2.44±0.1abcdef |
| K146 | 84.51±0.14ab | -2.05±0.04e | 3.61±0.05ghi | 3.61±0.05def |
| K147 | 84.86±0.11ab | -2.04±0.02de | 3.76±0.06efgh | 2.44±0.07abcdef |
| K148 | 85.03±0.03ab | -1.93±0.01b | 3.88±0.03defg | 2.54±0.03abcdef |
| K150 | 84.83±0.16ab | -2.12±0.01f | 3.42±0.05hi | 2.58±0.12abcde |

GM: goat milk; FGMC: fermented goat milk only using commercial starter cultures; L: fermented goat milk without kiwifruit; K: fermented goat milk with kiwifruit. a-i: Different letters indicate significant differences (p < 0.05).

Table S2 GC–MS identification results of volatile compounds in fermented milk samples.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Compound | Concentration (μg kg− 1) | | | | | | | | | | | | | | | | | |
| GM | FGMC | L126 | L142 | L143 | L145 | L146 | L147 | L148 | L150 | K126 | K142 | K143 | K145 | K146 | K147 | K148 | K150 |
| n-Hexane | 206.57±57.17 | 30.85±7.58 | 744.8±16.44 | 48.8±9.75 | 71.07±33.8 | 59.91±8.23 | 26.36±11.53 |  | 33.88±0 |  | 656.99±199.57 |  | 63.88±17.24 | 72.26±2.94 | 73.17±2.74 | 95.54±21.37 | 75.15±8.75 | 107.78±48.02 |
| Heptane |  | 61.53±7.25 | 13.69±4.96 | 22.4±0.49 | 58.6±5.99 | 53.19±6.65 | 27.44±0.13 | 33.16±6.07 | 31.64±12.17 | 17.29±4.46 | 32.97±9.11 |  |  |  |  |  | 63.72±20.33 | 111.68±3.07 |
| Octane | 25.87±1.6 |  |  |  |  | 8.12±0.03 |  |  |  |  |  |  |  |  |  |  |  |  |
| Decane |  |  |  |  | 15.05±2 | 13.2±0.34 | 5.44±1.7 |  |  |  |  |  |  |  |  |  |  |  |
| Undecane | 25.75±2.28 |  |  |  |  | 13.53±4.21 |  |  |  |  |  |  |  |  |  |  |  |  |
| Hentriacontane |  |  | 1.53±0.72 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Dotriacontane |  |  |  | 1.03±0.73 |  |  | 4.51±2.01 |  | 1.94±1.87 |  |  |  |  |  |  | 3.81±0.41 |  |  |
| Tritetracontane | 19.08±4.64 | 6.53±1.65 | 12.76±5.22 | 13.47±3.83 | 58.11±4.58 | 65.45±21.39 | 39.45±9.85 | 42.23±21.61 | 50.97±6.57 | 38.78±14.58 | 16.99±4.15 | 13.71±5.98 | 12.01±0.93 | 9.53±9.01 | 12.4±4.77 | 17.87±9.98 | 3.78±1.51 | 4.51±1.14 |
| Tetratetracontane | 14.01±10.61 | 4.09±1.07 | 3.08±1.25 | 3.52±2.68 | 12.43±3.61 | 11.73±4.91 | 5.69±3.47 | 4.35±0.75 | 5.06±3.2 | 6.51±1.03 |  |  |  |  |  |  | 4.58±2.58 |  |
| Hexane, 2,3,5-trimethyl- |  |  |  |  |  | 4.86±0.57 | 2.57±0.55 |  | 3.96±1.59 |  |  |  |  |  |  |  |  |  |
| Heptane, 2-methyl- |  |  |  |  | 26.37±5.59 | 29.97±7.35 |  | 17.34±12.85 | 20.89±6.78 | 9.16±1.62 |  |  |  |  |  |  |  |  |
| Heptane, 2,4-dimethyl- |  |  |  |  |  | 82.32±12.67 |  | 53.33±18.74 | 76.58±2.8 |  |  |  |  |  |  |  |  |  |
| Octane, 4-methyl- |  |  |  |  | 18.64±2.62 | 21.79±6.59 | 8.89±4.13 | 12.45±9.3 | 21.69±8.07 |  |  |  |  |  |  |  |  |  |
| Octane, 2,7-dimethyl- |  |  |  |  |  |  |  | 2.48±0.02 |  |  |  |  |  |  |  |  |  |  |
| Decane, 4-methyl- |  |  |  |  | 14.55±4.65 | 18.59±1.91 | 6.59±2.29 | 10.25±2.89 | 13.43±4.65 | 4.24±0.41 |  |  |  |  |  |  |  |  |
| Decane, 3,7-dimethyl- |  |  |  |  | 44.8±6.68 | 59.64±4.2 | 21.97±4.58 |  | 37.45±12.17 | 14.12±8.01 |  |  |  |  |  |  |  |  |
| Undecane, 3,7-dimethyl- |  |  |  |  |  |  | 4.62±0.16 |  |  |  |  |  |  |  |  |  |  |  |
| 1,3,5-Cycloheptatriene |  |  |  |  |  |  |  |  |  |  |  |  | 8.12±2.3 |  |  |  |  |  |
| 2,4-Dimethyl-1-heptene |  |  |  |  | 3.09±0.68 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1,3-Hexadien-5-yne |  |  |  |  |  |  |  |  |  |  |  |  | 1.01±0.42 |  |  |  |  |  |
| Benzene | 2.92±0 | 1.34±0.33 |  |  | 1.68±0.67 | 2.54±0.42 | 0.99±0.35 |  |  |  |  |  |  |  |  |  |  |  |
| Toluene |  |  |  |  |  |  |  |  |  | 8.56±0.73 | 10.44±2.98 |  |  |  |  |  |  |  |
| Acetic acid |  | 9.81±2.28 | 261.45±88.14 | 30.08±10.52 | 178.76±98.61 | 81.82±6.03 | 97.74±2.32 | 27.47±30.19 | 91.87±7.26 | 32.73±4.89 |  | 270.2±22.78 | 129.31±37.17 |  | 84.39±39.17 |  | 72.48±13.5 | 103.24±35.38 |
| Hexanoic acid |  | 2.37±1.41 |  |  | 6.91±2.81 |  | 3.35±0.42 |  | 4.35±2.15 |  |  |  | 3.08±1.11 |  |  |  | 8.43±9.12 |  |
| Heptanoic acid |  |  |  |  |  |  |  | 3.04±1.32 |  |  |  |  |  |  | 3.71±2.5 |  |  |  |
| 3,4-Dimethylpentanoic acid |  |  |  |  |  |  | 2.34±1.01 |  |  |  |  |  |  |  |  |  |  |  |
| Hexanal | 10.24±2.42 |  |  |  | 8.7±6.29 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Octanal |  |  |  | 3.02±0.81 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Propanal, 2-methyl- |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 2.04±0.37 |
| 2-Butanone |  | 2.68±2.34 |  | 0.58±0 |  |  |  | 3.06±0.92 |  |  |  |  |  |  |  |  |  |  |
| 2-Pentanone |  | 13.73±6.03 | 4.73±0.07 | 13.82±2.15 | 14.79±2.57 | 25.68±7.4 | 11.56±4.97 | 15.47±4.89 |  | 9.02±2.11 |  |  | 13.45±0.48 | 13.27±7.49 | 12.07±0.11 | 19.72±4.93 | 9.58±4.33 | 11.33±2.83 |
| 2-Heptanone |  | 31.54±3.39 | 4.01±2.03 | 28.18±5.41 | 33.57±9.88 | 52.89±11.25 | 25.09±8.62 | 29.19±8.89 | 35.05±6.17 | 21.84±4.64 | 6.85±1.58 | 34.43±5.45 | 24.26±0.96 | 28.88±1.41 | 32.01±5.54 | 38.28±5.78 | 21.01±8.86 | 28.14±10.46 |
| 2-Nonanone |  | 5.28±1.83 | 3.4±0.86 | 4.54±0.9 |  | 6.55±2.01 | 3.72±0.74 | 2.73±0.4 |  | 2.96±0.45 |  | 4.12±2.08 |  | 3.64±1.15 |  |  | 3.46±0.86 |  |
| 2,3-Butanedione |  | 396.09±72.35 |  | 147.52±4.55 | 233.37±15.22 | 239.2±18.76 | 104.59±3.27 | 355.34±107.51 | 294.3±34.69 | 150.21±35.01 |  | 228.97±17.25 |  | 262.65±103.29 | 287.43±63.85 | 379.49±150.96 | 306.21±54.41 | 540.81±199.27 |
| 2,3-Pentanedione |  | 219.61±11.07 |  |  | 14.41±0.37 | 14.89±6.08 | 8.32±4.01 | 47.36±13.36 |  | 11.11±2.84 |  |  | 27.09±1.48 | 40.54±4.08 |  | 56.4±7.65 | 33.46±8.94 | 59.28±20.32 |
| Acetoin |  | 259.62±52.03 | 63.3±5.53 | 315.45±42.37 | 449.96±257.44 | 475.05±116.62 | 215.58±76.51 | 382.51±94.05 | 342.8±91.62 | 238.42±50.43 | 265.06±61.01 | 646.99±63.76 | 443.98±12.82 | 427.92±162.75 | 462.77±90.78 | 624.51±113.95 | 427.01±94.91 | 594.98±189.24 |
| 2-Hydroxy-3-pentanone |  |  |  | 11.24±0.19 |  |  |  |  |  |  |  |  | 21.92±3.25 |  |  |  |  |  |
| 2,3-Butanediol |  |  | 6.94±1.35 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Octanoic acid, ethyl ester |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 2.71±2.27 |  |
| Decanoic acid, ethyl ester |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 4.34±2.48 |  |
| Propanoic acid, 2-hydroxy-, 2-methylpropyl ester |  |  |  |  |  |  | 9.16±3.98 | 12.31±1.84 |  |  |  | 27.72±2.99 |  | 20.17±4.25 | 23.21±5.75 | 26.15±4.73 | 27.11±4.18 |  |
| Disulfide, dimethyl |  | 2.1±0.52 | 2.76±3.05 |  |  |  |  | 1.69±0.06 | 1.05±0.48 |  | 4.24±3.71 | 5.07±2.14 | 4.67±2.38 |  |  |  | 1.53±0.05 | 5.53±0.65 |
| Di-n-decylsulfone |  |  |  |  |  |  |  | 24.85±11.35 |  |  |  | 3.93±0.76 |  |  |  |  |  |  |
| l-Alanine ethylamide, (S)- |  |  |  | 2.88±0.56 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ammonium acetate |  |  |  |  |  |  |  |  |  |  | 1008.3±276.56 |  |  |  |  |  |  |  |
| Heptacosane, 1-chloro- |  |  |  |  |  |  | 4.5±5.85 |  | 2.47±2 |  |  |  |  |  |  |  |  |  |
| Hexadecane, 1,1-bis(dodecyloxy)- | 10.04±4.19 | 4.2±0.68 | 2.95±3.48 | 1.55±0.59 | 3.98±1.7 | 7.35±1.83 | 2.94±0.04 | 1.89±1.07 |  | 2.2±2.57 | 2.08±1.03 | 9.13±7.9 | 0.82±0.24 |  |  |  | 7.56±6.76 | 6.66±4.9 |

GM: goat milk; FGMC: fermented goat milk only using commercial starter cultures; L: fermented goat milk without kiwifruit; K: fermented goat milk with kiwifruit.