

1 **Table S1.** Composition of experimental high fat diets

| | <i>coconut</i> | <i>sunflower</i> | <i>EVOO</i> |
|-------------------------------|---------------------------------|------------------|-------------|
| Diet component | g/kg | | |
| Custom diet mix ¹ | 666.6 | 666.6 | 666.6 |
| Coconut oil | 333.4 | - | - |
| Sunflower oil | - | 333.4 | - |
| Extra virgin olive oil | - | - | 333.4 |
| | % kcal | | |
| Protein | 18 | 18 | 18 |
| Carbohydrate | 22 | 22 | 22 |
| Fat | 60 | 60 | 60 |
| Fatty acid composition | g/100g total fatty acids | | |
| Σ SFA ² | 90.4 | 7.7 | 16.04 |
| Σ MUFA ³ | 7.2 | 39.7 | 78.54 |
| Σ PUFA ⁴ | 1.9 | 52.7 | 4.46 |
| Key fatty acids | | | |
| C8:0 | 5.8 | - | - |
| C10:0 | 6.2 | - | - |
| C12:0 | 46.2 | - | - |
| C14:0 | 19.3 | - | 0.01 |
| C16:0 | 10 | 5.1 | 13.61 |
| C16:1 | - | 0.1 | 1.21 |
| C18:0 | 2.9 | 2.6 | 2.42 |
| C18:1 | 7.2 | 39.6 | 77.33 |
| C18:2 ω6 | 1.9 | 52.6 | 3.64 |
| C18:3ω3 | - | 0.1 | 0.82 |

2 ¹Custom diet mix supplied and formulated by ENVIGO®

3 ²SFA: saturated fatty acids

4 ³MUFA: monounsaturated fatty acids

5 ⁴PUFA: polyunsaturated fatty acids

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7 **Table S2.** Minority compounds found in EVOO

| <i>Minority compounds</i> | <i>mg/kg</i> |
|---------------------------|---------------------------|
| Squalene | 9701 |
| Total tocopherols | 378.2 |
| α-Tocopherol | 369.1 |
| β-Tocopherol | 3.6 |
| γ-Tocopherol | 5.6 |
| δ-Tocopherol | <1.0 |
| Tyrosol | 2.5 |
| | mg/kg tyrosol |
| Total Biophenols | 265.1 |
| Hydroxytyrosol | 0.6 |
| Oleocanthal | 34 |
| | mg caffeic acid/kg |
| Total Polyphenols | 372 |

8 **Table S3.** PicoGreen-Based DNA Quantification and Quality control analysis

| <i>Sample</i> | <i>PicoGreen-Based DNA Quantification assay</i> | | <i>Quality control</i> | | |
|---------------|---|----------------------|------------------------|----------|-----------------|
| | Concentration (ng/μl) | Secuencias number | Length | Total Mb | Mean quality |
| 1 | 8,57 | 160.391 | 408,66 | 65,55 | 36,63 |
| 2 | 2,62 | 35.336 | 402,03 | 14,21 | 36,66 |
| 3 | 0,69 | 52.841 | 403,59 | 21,33 | 36,6 |
| 4 | 6,62 | 62.736 | 407,23 | 25,55 | 36,57 |
| 5 | 1,43 | 50.976 | 395,67 | 20,17 | 36,57 |
| 6 | 6,46 | 124.853 | 407,03 | 50,82 | 36,56 |
| 7 | 6,78 | 28.568 | 406,31 | 11,61 | 37,13 |
| 8 | 48,96 | 62.205 | 405,98 | 25,25 | 36,69 |
| 9 | 32,76 | 262.236 | 415,23 | 108,89 | 37,72 |
| 10 | 24 | 35.561 | 400,73 | 14,25 | 37,56 |
| 11 | 17,33 | 39.532 | 407,51 | 16,11 | 37,56 |
| 12 | 19,46 | 40.347 | 396,82 | 16,01 | 37,53 |
| 13 | 11,07 | 14.200 | 396,63 | 5,63 | 37,52 |
| 14 | 15,89 | 11.165 | 403,01 | 4,5 | 37,49 |
| 15 | 3,4 | 14.475 | 402,22 | 5,82 | 37,62 |
| 16 | 4,5 | 22.264 | 412,94 | 9,19 | 37,59 |
| 17 | 17,79 | 128.719 | 413,63 | 53,24 | 37,64 |
| 18 | 5,87 | 53.570 | 405,58 | 21,73 | 36,59 |
| 19 | 6,51 | 7.235 | 394,54 | 2,85 | 37,56 |
| 20 | 14,41 | 55.965 | 408,66 | 22,87 | 36,46 |
| 21 | 67,27 | 72.339 | 411,68 | 29,78 | 37,03 |
| 22 | 56,12 | 61.013 | 407,87 | 24,89 | 36,49 |
| 23 | 39,88 | 62.298 | 402,28 | 25,06 | 36,15 |
| 24 | 24,04 | 211.347 | 410,15 | 86,68 | 37,85 |
| 25 | 41,39 | 287.816 | 408,71 | 117,63 | 36,53 |
| 26 | 14,61 | 61.276 | 408,11 | 25,01 | 36,5 |
| 27 | 28,73 | 32.903 | 385,25 | 12,68 | 37,46 |
| 28 | 20,44 | 182.564 | 415,39 | 75,84 | 37,6 |
| 29 | 10,61 | 74.745 | 412,45 | 30,83 | 37,64 |
| 30 | 11,76 | 56.803 | 405,31 | 23,02 | 37,54 |
| 31 | 20,13 | 215.602 | 414,9 | 89,45 | 37,63 |
| 32 | 10,68 | 72.644 | 408,24 | 29,66 | 37,42 |

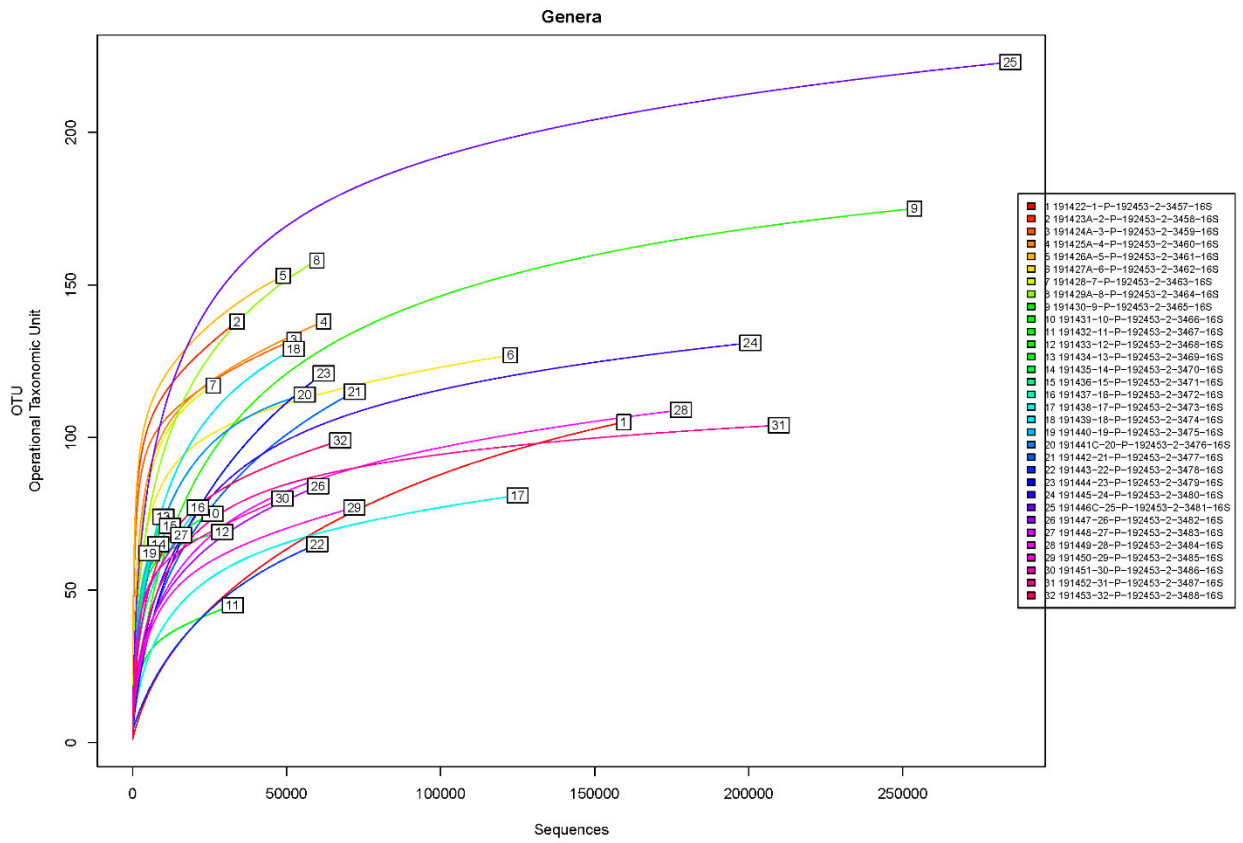
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15 **Figure S1.** Rarefaction curves of the amplified samples for the detection of bacterial
 16 genera.

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