**Supplementary Tables.**

**Supplementary Table 1**. Final optical density and pH from various substrates by *Thermoanaerobacter* strainAK15 after 5 days of cultivation. Values represent the average of triplicate measures ± standard deviation.

|  |  |  |
| --- | --- | --- |
| Carbon source | Optical density | pH |
| Control (yeast extract) | 0.12±0.02 | 7.11±0.02 |
| Cellobiose | 0.42±0.02 | 6.21±0.04 |
| Glucose | 0.43±0.04 | 6.12±0.02 |
| Galactose | 0.48±0.03 | 6.21±0.03 |
| Mannose | 0.40±0.04 | 6.15±0.05 |
| Xylose | 0.35±0.06 | 6.12±0.04 |
| Arabinose | 0.42±0.16 | 6.23±0.03 |
| Mannitol | 0.45±0.03 | 6.21±0.04 |
| Fucose | 0.11±0.08 | 7.01±0.02 |
| Rhamnose | 0.10±0.04 | 7.06±0.06 |

**Supplementary Table 2.** Final optical density and pH from glucose degradation at different liquid-gas phase ratios by *Thermoanaerobacter* strainAK15 after 5 days of cultivation. Values represent the average of triplicate measures ± standard deviation.

|  |  |  |  |
| --- | --- | --- | --- |
| Carbon source | Liquid-gas phase ratio | Optical density | pH |
| Control (yeast extract) | 0.09 | 0.12±0.02 | 7.11±0.02 |
| Control (yeast extract | 1.00 | 0.12±0.03 | 7.21±0.01 |
| Control (yeast extract | 5.62 | 0.12±0.02 | 6.71±0.03 |
| Glucose | 0.09 | 0.32±0.05 | 6.05±0.02 |
| Glucose | 1.00 | 0.28±0.01 | 6.22±0.12 |
| Glucose | 5.62 | 0.31±0.01 | 6.45±0.16 |

**Supplementary Table 3.** Final optical density and pH of various polymeric substrates by *Thermoanaerobacter* strainAK15 after 5 days of cultivation. Values represent the average of triplicate measures ± standard deviation.

|  |  |  |
| --- | --- | --- |
| Carbon source | Optical density | pH |
| Control (yeast extract) | 0.12±0.04 | 7.11±0.02 |
| Starch | 0.32±0.03 | 6.54±0.03 |
| Cellulose | 0.13±0.04 | 7.12±0.03 |
| Laminarin | 0.14±0.03 | 7.11±0.04 |
| Xylan | 0.14±0.04 | 7.15±0.02 |
| Chitosan | 0.15±0.01 | 7.12±0.05 |
| Chitin | 0.12±0.02 | 7.03±0.00 |
| Lichenan | 0.15±0.02 | 7.11±0.01 |
| Pectin | 0.11±0.03 | 7.01±0.02 |
| Keratin | 0.10±0.01 | 7.06±0.07 |
| Mannan | 0.18±0.02 | 6.90±0.05 |
| Galactan | 0.15±0.02 | 6.94±0.08 |
| Rhamnan | 0.17±0.01 | 6.92±0.05 |

**Supplementary Table 4.** Final optical density and pH of various hydrolysates from polymeric substrates by *Thermoanaerobacter* strainAK15 after 5 days of cultivation. Values represent the average of triplicate measures ± standard deviation.

|  |  |  |
| --- | --- | --- |
| Carbon source | Optical density | pH |
| Control (yeast extract) | 0.12±0.04 | 7.11±0.02 |
| Whatman paper | 0.29±0.02 | 6.32±0.03 |
| Newspaper | 0.25±0.03 | 6.22±0.04 |
| Timothy grass | 0.33±0.01 | 6.31±0.01 |
| Rhubarb leaves | 0.19±0.02 | 6.23±0.01 |
| Ascophyllum | 0.34±0.02 | 6.27±0.02 |
| Palmaria | 0.21±0.02 | 6.23±0.02 |
| Laminaria | 0.43±0.01 | 6.26±0.04 |
| Ulva | 0.22±0.02 | 6.32±0.03 |

**Supplementary Table 5**. Final optical density and pH of the degradation of the branched-chain fatty acids in the absence and presence of thiosulfate by *Thermoanaerobacter* strainAK15 after 5 days of cultivation. Values represent the average of triplicate measures ± standard deviation.

|  |  |  |
| --- | --- | --- |
| Carbon source | Optical density | pH |
| Control  | 0.12±0.04 | 7.13±0.02 |
| Control + S2O3 | 0.23±0.03 | 6.87±0.04 |
| Leucine | 0.13±0.02 | 7.03±0.02 |
| Leucine + S2O3 | 1.31±0.29 | 6.23±0.06 |
| Isoleucine | 0.14±0.04 | 7.05±0.02 |
| Isoleucine + S2O3 | 1.47±0.13 | 6.04±0.06 |
| Valine | 0.13±0.03 | 7.02±0.03 |
| Valine + S2O3 | 1.51±0.17 | 6.12±0.06 |