**Figure 1**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Strain | Substrate | Time  (h) | Production  (g/L) | Productivity  (g/L/h) | Yield  (%) | Comparation  (%) | Reference |
| *C. tyrobutyricum* | Glucose | 74 | 44.0 | 0.6 | 38 | / | Zhang, et al.[27] |
| *C. tyrobutyricum* | Glucose | 120 | 43.0 | 0.4 | 47 | 39..3 | Liu, et al. [14] |
| *C. tyrobutyricum* | Sugarcan  molasses | / | 34.6 | 0.6 | / | -1.6 | Jiang, et al.[28] |
| *C. tyrobutyricum* | Flour  hydrolysate | 50 | 62.8 | 1.3 | 45 | +111.9 | Fayolle, et al.[29] |
| *C. butyricum* | Whey | 42 | 18.6 | 0.4 | 39 | -25.4 | D. Vandak, et al.[30] |
| *C. butyricum* | Saccharose | 30 | 7.3 | 0.2 | 24 | -59.3 | J. Zigova, et al.[31] |
| *G. oxydans*  *(AS-BR)* | Butanol | 24 | 30.7 | 1.3 | 35 | +116.9 | / |
| *G. oxydans*  *(SOS-BR)* | Butanol | 24 | 33.2 | 1.4 | 96 | +133.9 | / |
| *G. oxydans*  *(Integrated process)* | Butanol | 60 | **135.3** | **2.3** | **95** | **+283.1** | **/** |

**Table 1**