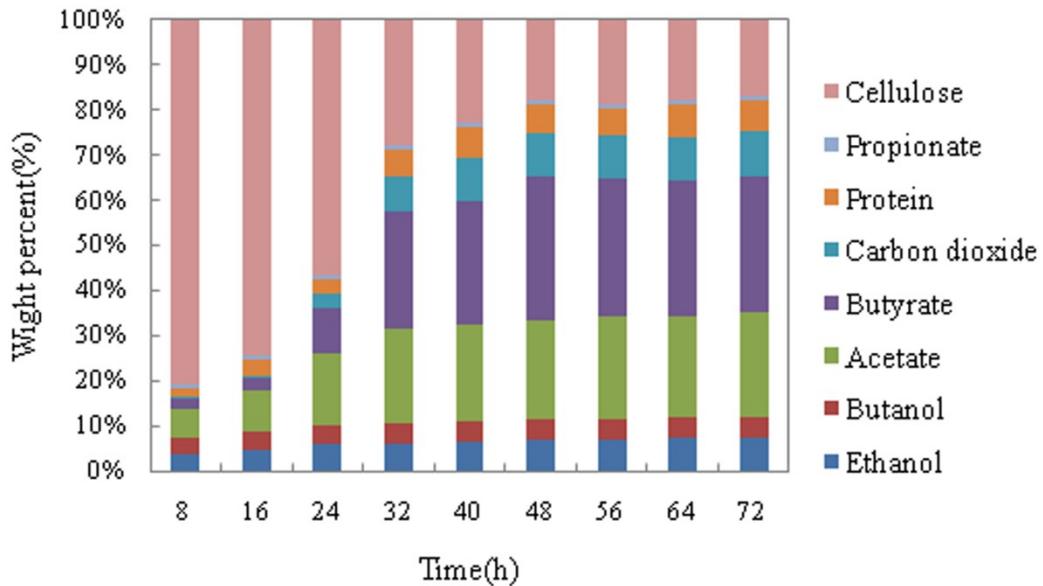


**Figure S1** Micrographs of *T. thermosaccharolyticum* DD32. Transmission electron microscopy (TEM) micrograph.



**Figure S2.** Carbon balance analysis of *T. thermosaccharolyticum* DD32 at 5.0 g L<sup>-1</sup> Avicel, 1.5 g L<sup>-1</sup> Yeast, pH 7.5, 55°C within 72 h of batch fermentation of *T.thermosaccharolyticum* DD32.