Electronic Supplementary Information (ESI) 1 2 **β-Ketoadipic Acid Production from Poly(ethylene** 3 terephthalate) Waste via Chemobiological Upcycling 4 5 6 Sang-Mook You^a, Si Seon Lee^b, Mi Hee Ryu^c, Hye Min Song^d, Min Soo Kang^a, Ye Jean Jung^a, Eun Chae Song^e, Bong Hyun Sung^f, Si Jae Park^d, Jeong Chan Joo^{b,*} Hee Taek Kim^{e,*} and Hyun Gil Cha^{a,*} 9 a Center for Bio-based Chemistry, Korea Research Institute of Chemical Technology (KRICT), Ulsan 10 44429, Republic of Korea 11 b Department of Biotechnology, The Catholic University of Korea, Bucheon-si, Gyeonggi-do 14662, 12 Republic of Korea 13 c Green Carbon Research Center Korea Research Institute of Chemical Technology (KRICT), Daejeon 34114, Republic of Korea 15 d Department of Chemical Engineering and Materials Science, Graduate Program in System Health Science 16 & Engineering, Ewha Woman's University, Seoul 03760, Republic of Korea 17 e Department of Food Science and Technology, College of Agriculture and Life Sciences, Chungnam 18 National University, Daejeon 34134, Republic of Korea 19 f Synthetic Biology Research Center, Korea Research Institute of Bioscience and Biotechnology, Daejeon 20 34141, Republic of Korea 21 22 23 *Corresponding author 24 Jeong Chan Joo: jcjoo@catholic.ac.kr 25 26 Hee Taek Kim: heetaek@cnu.ac.kr 27 28 Hyun Gil Cha: hgcha@krict.re.kr 29 30 31 **Keywords:** Poly(ethylene terephthalate), chemical hydrolysis, two-stage fed-batch bioconversion, amberlyst-15, beta-ketoadipate 32 33

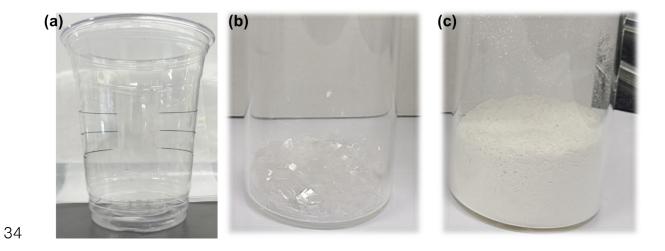


Fig. S1 Image of (a) disposable plastic waste cup, (b-c) followed by the same cup in pieces after being cut and grounded

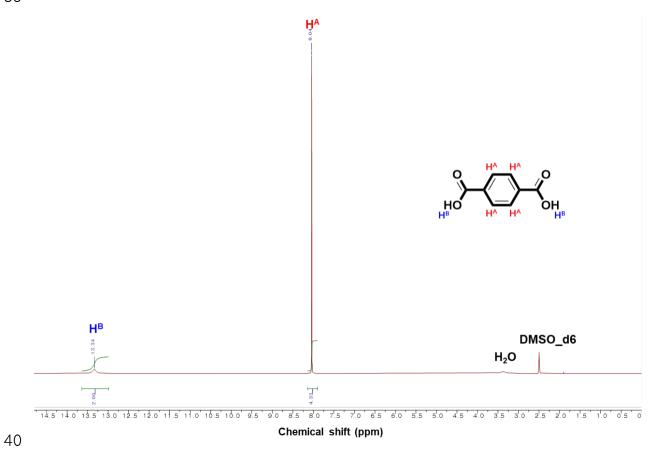


Fig. S2 ¹H NMR of terephthalic acid (TPA) from Amberylst-15-mediated PET hydrolysis