Fig. S1. Effect of [BMIM][BF4] and [HMIM][BF4] on vitamin B_{12} and propionic acid biosynthesis by *P. freudenreichii*. Data are mean values ± standard deviation of three replicates. Vertical bars on the columns are ±SD of the mean.
Fig. S2. Effect of [BMIM][BTS] and [HMIM][PTS] on vitamin B$_{12}$ and propionic acid biosynthesis by *P. freudenreichii*. Data are mean values ± standard deviation of three replicates. Vertical bars on the columns are ±SD of the mean.
Fig. S3. Effect of [BMIM][MeOSO3] and [OMIM][MeOSO3] on vitamin B₁₂ and propionic acid biosynthesis by *P. freudenreichii*. Data are mean values ± standard deviation of three replicates. Vertical bars on the columns are ±SD of the mean.
Fig. S4. Effect of [BMIM][SCN] and [OMIM][SCN] on vitamin B$_{12}$ and propionic acid biosynthesis by _P. freudenreichii_. Data are mean values ± standard deviation of three replicates. Vertical bars on the columns are ±SD of the mean.
Fig. S5. Effect of [BMIM][NO3], [HMIM][NO3] and [OMIM][NO3] on vitamin B$_{12}$ and propionic acid biosynthesis by $P$. freudenreichii. Data are mean values ± standard deviation of three replicates. Vertical bars on the columns are ±SD of the mean.
Fig. S6. The amount of VB12 and PA production over time by *P. freudenreichii*. Maximum production of VB12 is at 120 hr.