



Figure S3. Confirmation of the recombinant strains of *B. licheniformis* by PCR amplification.

(A) Lane M: DL5000 marker; Lane 1: negative control (PCR products amplified from the wild strain WX-02 genome); Lane 2: PCR products amplified from WX-02 Δ *gdh* with the primers Δ *gdh*-F and Δ *gdh*-R

(B) Lane M: DL5000 marker; Lane 1: negative control (PCR products amplified from the wild strain WX-02 genome); Lane 2: PCR products amplified from WX-02 Δ *acoR* with the primers Δ *acoR*-F and Δ *acoR*-R

(C) Lane M: DL5000 marker; Lane 1 and 3: negative control (PCR products amplified from the wild strain WX-02 genome) with the primer pairs Δ *gdh*-F/R and Δ *acoR*-F/R, respectively; Lane 2 and 4: PCR products amplified from WX-02 Δ *gdh* Δ *acoR* with the primer pairs Δ *gdh*-F/R and Δ *acoR*-F/R, respectively.