Supplementary File 4. List of primers, plasmids and strains

Primers used in this study

Name	Sequence	Description
fdh1Eco	CA**GAATTC**AAGCAAGCGGATTACGG	to amplify the 5' region of *fdh1A*
fdh1Kpn	CA**GGTACC**AGCCGACGCCGCAATAG	to amplify the 5' region of *fdh1A*
fdh1Apa	AA**GGGCCC**ACCCGTGCGCCGCGTGAT	to amplify the 3' region of *fdh1A*
fdh1Sac	CA**GAGCTC**CCATGCGGGCCATATCC	to amplify the 3' region of *fdh1A*
fdh4Bgl	AC**AGATCT**GTCGCAACCTAAAGCAGC	to amplify the 5' region of *fdh4A*
fdh4Kpn	CA**GGTACC**AACTCGCCCAGCATGCG	to amplify the 5' region of *fdh4A*
fdh4Apa	AA**GGGCCC**ACAGCAAGACGCCTTGG	to amplify the 3' region of *fdh4A*
fdh4Sac	CA**GAGCTC**AAGCAGCATGGGACACC	to amplify the 3' region of *fdh4A*
gndBEco	CA**GAATTC**ATGATCGCGTGCTGTTTG	to amplify the 5' region of *gndA*
gndBNco	CA**CCATGG**AGATGGGCCGAAACGTG	to amplify the 5' region of *gndA*
gndBApa	CA**GGGCCC**ACGGTGAAGCTGGAATC	to amplify the 3' region of *gndA*
gndBSac	CA**GAGCTC**TTATACCTTGAACTGCGG	to amplify the 3' region of *gndA*
mgdEco	AA**GAATTC**GCGCACGTTTGACCAAGC	to amplify the 5' region of *mgdC*
mgdKpn	CA**GGTACC**ACCACGGGGATCAGGTG	to amplify the 5' region of *mgdC*
mgdApa	AA**GGGCCC**TTACGCCGCGATCAATG	to amplify the 3' region of *mgdC*
mgdSac	CA**GAGCTC**ACTGTTGGCTGACAAGG	to amplify the 3' region of *mgdC*

Plasmids constructed in this study

Name	Description
pLCRfdh1EK	pCR2.1 containing the 5' region of *fdh1A*
pLCRfdh1AS	pCR2.1 containing the 3' region of *fdh1A*
pLC184fdh1EK	pCM184 containing the 5' region of *fdh1A*

pLC184fdh1EKAS   pCM184 containing the 5' and the 3' regions of *fdh1A*

pLCRfdh4BK   pCR2.1 containing the 5' region of *fdh4A*

pLCRfdh4AS   pCR2.1containing the 3' region of *fdh4A*

pLC184fdh4BK   pCM184 containing the 5' region of *fdh4A*

pLC184fdh4BKAS   pCM184 containing the 5' and the 3' regions of *fdh4A*

pLCRgndBEN   pCR2.1 containing the 5' region of *gndA*

pLCRgndBAS   pCR2.1containing the 3' region of *gndA*

pLC184gndBEN   pCM184 containing the 5' region of *gndA*

pLC184gndBENAS   pCM184 containing the 5' and the 3' regions of *gndA*

pLCRmgdEK   pCR2.1 containing the 5' region of *mgdC*

pLCRmgdAS   pCR2.1 containing the 3' region of *mgdC*

pLC184mgdEK   pCM184 containing the 5' region of *mgdC*

pLC184mgdEKAS   pCM184 containing the 5' and the 3' regions of *mgdC*

Mutant strains constructed in this study

Name	Genotype
FDH1A	Δ*fdh1A*, Km^R
FDH4A	Δ*fdh4A*, Km^R
GndA	Δ*gndA*, Km^R
GndB	Δ*gndB*, Km^R
GndB	Δ*gndB*
GndB/FDH1A	Δ*gndB* Δ*fdh1A*, Km^R
MgdC	Δ*mgdC*, Km^R