

Supplementary data

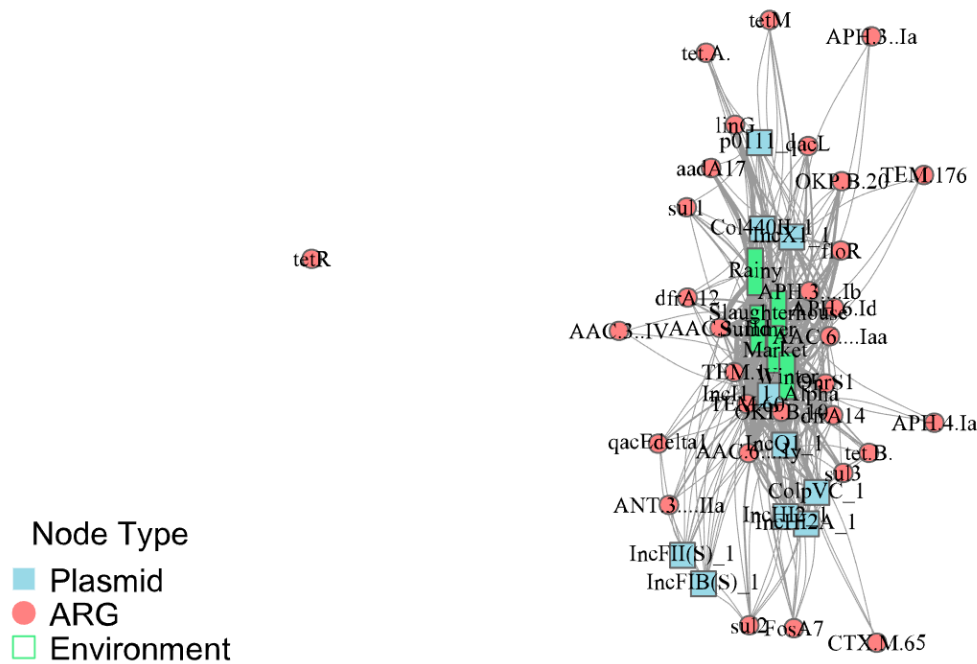


Figure S1 Co-occurrence network analysis of plasmids and antibiotic resistance genes

This network diagram illustrates 291 connections among 46 nodes (10 plasmid replicons, 33 antibiotic resistance genes, and 3 environmental factors). Node size reflects connectivity, while edge thickness indicates co-occurrence frequency. With a network density of 0.281, it exhibits moderately connected structural characteristics. Four major functional clusters were identified, with IncI1_1_Alpha, IncX1_1, and IncQ1_1 plasmids serving as core hub nodes that play crucial connecting roles within the network.

Table S1. Profile of AMR, Plasmid, and Virulence Genes for the 19 Strains

Sample ID	Antimicrobial resistance genes	Virulence genes	Main SPI	Plasmid	Antibiotic susceptibility testing pattern
C10A	<i>AAC(6')-Iy</i> , <i>OKP-B-10</i> , <i>gyrA</i> , <i>TEM-60</i>	<i>fimA</i> , <i>fimC</i> , <i>fimD</i> , <i>fimF</i> , <i>fimH</i> , <i>fimI</i> , <i>fimW</i> , <i>fimY</i> , <i>fimZ</i> , <i>invA</i> , <i>invB</i> , <i>invC</i> , <i>invE</i> , <i>invF</i> , <i>invG</i> , <i>invH</i> , <i>invI</i> , <i>invJ</i> , <i>lpfA</i> , <i>lpfB</i> , <i>lpfC</i> , <i>lpfD</i> , <i>lpfE</i> , <i>sipC</i> , <i>sipD</i> , <i>sitA</i> , <i>sitB</i> , <i>sitC</i> , <i>sitD</i> , <i>sopA</i> , <i>sopB</i> , <i>sopD</i> , <i>sopD2</i> , <i>sopE2</i> , <i>ssaC</i> , <i>ssaD</i> , <i>ssaE</i> , <i>ssaG</i> , <i>ssaH</i> , <i>ssaI</i> , <i>ssaJ</i> , <i>ssaK</i> , <i>ssaL</i> , <i>ssaM</i> , <i>ssaN</i> , <i>ssaO</i> , <i>ssaP</i> , <i>ssaQ</i> , <i>ssaR</i> , <i>ssaS</i> , <i>ssaT</i> , <i>ssaU</i> , <i>ssaV</i> , <i>sseA</i> , <i>sseB</i> , <i>sseC</i> , <i>sseD</i> , <i>sseE</i> , <i>sseF</i> , <i>sseG</i> , <i>sseJ</i> , <i>sseK1</i> , <i>sseK2</i> , <i>sseL</i>	T3SS(SP I-1/SPI- 2)	-	Nor
C27A	<i>AAC(3)-IId</i> , <i>AAC(6')-Iy</i> , <i>ANT(3'')-IIa</i> , <i>OKP-B-10</i> , <i>TEM-1</i> , <i>TEM-60</i> , <i>qacL</i> , <i>sul3</i>	<i>fimA</i> , <i>fimB</i> , <i>fimC</i> , <i>fimD</i> , <i>fimF</i> , <i>fimH</i> , <i>fimI</i> , <i>fimW</i> , <i>fimY</i> , <i>fimZ</i> , <i>invA</i> , <i>invB</i> , <i>invC</i> , <i>invE</i> , <i>invF</i> , <i>invG</i> , <i>invH</i> , <i>invI</i> , <i>invJ</i> , <i>lpfA</i> , <i>lpfB</i> , <i>lpfC</i> , <i>lpfD</i> , <i>lpfE</i> , <i>sipA</i> , <i>sipB</i> , <i>sipC</i> , <i>sipD</i> , <i>sitA</i> , <i>sitB</i> , <i>sitC</i> , <i>sitD</i> , <i>sopA</i> , <i>sopB</i> , <i>sopD</i> , <i>sopD2</i> , <i>sopE2</i> , <i>ssaC</i> , <i>ssaD</i> , <i>ssaE</i> , <i>ssaG</i> , <i>ssaH</i> , <i>ssaI</i> , <i>ssaJ</i> , <i>ssaK</i> , <i>ssaL</i> , <i>ssaM</i> , <i>ssaN</i> , <i>ssaO</i> , <i>ssaP</i> , <i>ssaQ</i> , <i>ssaR</i> , <i>ssaS</i> , <i>ssaT</i> , <i>ssaU</i> , <i>ssaV</i> , <i>sseA</i> , <i>sseB</i> , <i>sseC</i> , <i>sseD</i> , <i>sseE</i> , <i>sseF</i> , <i>sseG</i> , <i>sseJ</i> , <i>sseK1</i> , <i>sseK2</i> , <i>sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncI_gam</i> <i>ma_K1</i>	S+GM+AM

		<i>aN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseJ,sseK2,sseL</i>			
C65A	<i>AAC(6')-Iy, APH(3')-Ia, OKP-B-20, QnrS1, TEM-176, TEM-60, dfrA14, floR, tet(A)</i>	<i>fimA,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseI/srfH,sseJ,sseK1,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncX1</i>	S+TE+GM+SX T+C+AM
C81A	<i>AAC(6')-Iaa, OKP-B-10, QnrS1</i>	<i>fimA,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,inv,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseI/srfH,sseJ,sseK1,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>Col_relaxed</i>	
C84A	<i>AAC(6')-Iaa, OKP-B-20, QnrS1, TEM-60</i>	<i>fimA,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,fljB,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseI/srfH,sseJ,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>Col_relaxed</i>	TE+GM+SXT+ CTX+C+AM+ CAZ+AM+CR O
C85A	<i>AAC(6')-Iy, OKP-B-10, TEM-60</i>	<i>fimA,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,fljB,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseI/srfH,sseJ,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	-	S+CTX+C+AM +CAZ+CRO
C102A	<i>AAC(3)-IId, AAC(6')-Iaa, OKP-B-20, TEM-1, aadA17, linG</i>	<i>fimA,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseI/srfH,sseJ,sseK1,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncHI1B</i>	S+TE+AM+CA Z+CRO
C137A	<i>AAC(3)-IId, AAC(6')-Iaa, APH(3'')-Ib, APH(6)-Id, OKP-B-10, TEM-1, aadA17, linG, sul2, tet(B), tetR</i>	<i>fimA,fimB,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,fljB,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseI/srfH,sseJ,sseK1,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncQ1</i>	S+TE+GM+NA +SXT+AM
C138A	<i>AAC(3)-IId, APH(3'')-Ib, APH(6)-Id, OKP-B-10, QnrS1, TEM-1, dfrA12, floR, sul1, tet(A), tet(M)</i>	<i>fimA,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,fljC,fljB,inv,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseI/srfH,sseJ,sseK1,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncHI1B/IncHI2A, IncQ1</i>	S+TE+GM+NA +SXT+CTX+A M

		<i>aL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseJ,sseK1,sseL</i>			
C149A	<i>AAC(3)-Ild, AAC(6')-Iy, OKP-B-10, TEM-1, TEM-60, aadA17, linG</i>	<i>fimA,fimB,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,fljB,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE,sopE2,spvB,spvC,spvR,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseI,srfH,sseJ,sseK1,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncI_gam ma_K1</i>	S+TE+GM+NA +AM+AMC
C151A	<i>AAC(3)-Ild, AAC(6')-Iy, OKP-B-10, TEM-1, TEM-60, aadA17, linG</i>	<i>fimA,fimB,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,fljB,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseJ,sseK1,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncI_gam ma_K1</i>	S+AM
C152A	<i>AAC(3)-Ild, AAC(6')-Iaa, APH(3'')-Ib, APH(6)-Id, OKP-B-10, TEM-1, TEM-60, aadA17, linG, sul2, tet(B), tetR</i>	<i>fimA,fimB,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,fljC,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseJ,sseK1,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncI_gam ma_K1, IncQ1</i>	S+TE+GM+NA +AM+AMC
C154A	<i>AAC(3)-Ild, AAC(6')-Iy, OKP-B-10, TEM-1, TEM-60</i>	<i>fimA,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,fljB,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseJ,sseK1,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncI_gam ma_K1</i>	S+TE+GM+NA +AM
C188A	<i>AAC(6')-Iy, APH(3'')-Ib, APH(6)-Id, FosA7, OKP-B-10, TEM-1, TEM-60, dfrA14, sul3, tet(A)</i>	<i>fimA,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseJ,sseK1,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncX1</i>	S+TE+GM+NA +SXT+AM+A MC
C193A	<i>AAC(6')-Iy, OKP-B-10, gyrA</i>	<i>fimA,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,fljB,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseJ,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncFIB - FII</i>	AM+AMC
C195A	<i>AAC(6')-Iy, APH(3'')-Ib, APH(6)-Id, FosA7, OKP-B-20, QnrS1, TEM-1, TEM-60, dfrA14, sul3, tet(A)</i>	<i>fimA,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,fljB,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssa</i>	T3SS(SP I-1/SPI- 2)	-	S+TE+GM+NA +SXT+C+AM

		<i>P,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseJ,sseK1,sseL</i>			
C200A	<i>AAC(3)-IId, APH(3'')-Ib, APH(6)-Id, OKP-B-10, QnrS1, TEM-1, dfrA12, floR, sul1, tet(A), tet(M)</i>	<i>fimA,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,flc,inv,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseJ,sseK1,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncQ1</i>	S+TE+GM+NA +SXT+CTX+A M
C205A	<i>AAC(3)-IV, AAC(6')-Iy, ANT(3'')-IIa, APH(4)-Ia, CTX-M-65, OKP-B-10, gyrA, TEM-60, dfrA14, floR, qacEdelta1, sul1, tet(A)</i>	<i>fimA,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,fljB,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseJ,sseK1,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncFIB</i>	S+TE+GM+NA +SXT+IPM+C TX+CIP+AM
C222A	<i>AAC(3)-IId, AAC(6')-Iaa, APH(3'')-Ib, APH(6)-Id, OKP-B-10, QnrS1, TEM-1, dfrA12, floR, sul1, tet(A), tet(M)</i>	<i>fimA,fimC,fimD,fimF,fimH,fimI,fimW,fimY,fimZ,flc,inv,invA,invB,invC,invE,invF,invG,invH,invI,invJ,lpfA,lpfB,lpfC,lpfD,lpfE,sipC,sipD,sitA,sitB,sitC,sitD,sopA,sopB,sopD,sopD2,sopE2,ssaC,ssaD,ssaE,ssaG,ssaH,ssaI,ssaJ,ssaK,ssaL,ssaM,ssaN,ssaO,ssaP,ssaQ,ssaR,ssaS,ssaT,ssaU,ssaV,sseA,sseB,sseC,sseD,sseE,sseF,sseG,sseJ,sseK1,sseK2,sseL</i>	T3SS(SP I-1/SPI- 2)	<i>IncHI1B/IncHI2A, IncQ1</i>	S+TE+GM+NA +SXT+IPM+A M