antibiotics

MDPI

*Supplementary Materials*

Table S1. Samples FASTQ quality results before and after trimming

| Sample ID | Before Trimming | | After Trimming | | % reads with > Q30 |
|---|---|---|---|---|---|
| | Sequence Count | Sequence length (bp) | Sequence Count | Sequence length (bp) | |
| Sample 1 | 1623613 | 35-151 | 1576315 | 35-151 | 90.00% |
| Sample 2 | 1703655 | 35-151 | 1668995 | 35-151 | 91.00% |
| Sample 3 | 1719544 | 35-151 | 1682767 | 35-151 | 90.00% |
| Sample 4 | 1881969 | 35-151 | 1856238 | 35-151 | 90.00% |
| Sample 5 | 1973571 | 35-151 | 1941329 | 35-151 | 92.00% |
| Sample 6 | 1761215 | 35-151 | 1738369 | 35-151 | 88.00% |
| Sample 7 | 2022942 | 35-151 | 1992586 | 35-151 | 90.00% |
| Sample 8 | 6180659 | 35-151 | 230081 | 35-151 | 92.00% |
| Sample 9 | 40962807 | 35-151 | 215436 | 35-151 | 85.00% |
| Sample 10 | 40206346 | 35-151 | 314889 | 35-151 | 88.00% |
| Sample 11 | 38981048 | 35-151 | 709969 | 35-151 | 90.00% |
| Sample 12 | 39860792 | 35-151 | 485076 | 35-151 | 91.00% |
| Sample 13 | 40801943 | 35-151 | 475684 | 35-151 | 89.00% |
| Sample 14 | 42630616 | 35-151 | 224093 | 35-151 | 90.00% |
| Sample 15 | 21452942 | 35-151 | 146166 | 35-151 | 93.00% |
| Sample 16 | 37861687 | 35-151 | 257229 | 35-151 | 94.00% |
| Sample 17 | 18995440 | 35-151 | 976544 | 35-151 | 89.00% |
| Sample 18 | 42789617 | 35-151 | 285384 | 35-151 | 92.00% |

Table S2. Virulence genes and Pathotype

| Gene | Gene Description | Pathotype |
|---|---|---|
| *irp1* | Iron-regulated outer membrane protein 1 | ExPEC |
| *irp2* | Iron-regulated outer membrane protein 2 | ExPEC |
| *ybtSXQPA* | Yersiniabactin biosynthesis genes | ExPEC |
| *fyuA* | Yersiniabactin receptor | ExPEC |
| *iutA* | Aerobactin receptor | ExPEC |
| *ybt* | Yersiniabactin biosynthesis regulator | ExPEC |
| *Aap* | Adhesin AIDA-I precursor | APEC, UPEC |
| *air* | Adhesin involved in biofilm formation | UPEC |
| *agg3B, agg3C, agg3D* | Aggregative adherence fimbriae subunits | EAEC |
| *afaA, afaB* | Dr family adhesins | DAEC |
| *astA* | Heat-stable enterotoxin | ETEC |
| *traT* | Serum resistance protein | ExPEC |
| *iss* | Increased serum survival protein | ExPEC |
| *chuA* | Heme receptor | ExPEC |
| *sat* | Secreted autotransporter toxin | UPEC |
| *terC* | Tellurium resistance protein | ExPEC |
| *eilA* | Iron uptake regulation protein | ExPEC |
| *nfaE* | Non-fimbrial adhesin E | ExPEC |
| *kpsE* | Capsule export protein | ExPEC |
| *kpsMII* | Capsule biosynthesis protein | ExPEC |
| *capU* | Capsule biosynthesis protein | ExPEC |
| *AslA* | Antisense RNA regulating biofilm formation | UPEC |
| *csgA* | Curli fimbriae subunit | ExPEC |
| *fdeC* | Fimbrial adhesin | ExPEC |
| *fimH* | Type 1 fimbrial adhesin | ExPEC, UPEC |
| *iha* | Iron-regulated adhesin | ExPEC |
| *ireA* | Iron-regulated outer membrane protein | ExPEC |
| *yehD* | Outer membrane protein | ExPEC |
| *hlyA, hlyB, hlyC, hlyD, hlyE* | Hemolysin proteins | ExPEC, UPEC |
| *clbA, clbB* | Colibactin biosynthesis proteins | ExPEC |
| *iucC* | Aerobactin biosynthesis protein | ExPEC |
| *uge* | UDP-glucose 4-epimerase | ExPEC |
| *magA* | Mucoviscosity-associated gene A | ExPEC |
| *rmpC* | Regulator of mucoid phenotype C | ExPEC |
| *evgA* | Two-component system regulator | ExPEC |
| *ycfM* | Outer membrane protein | ExPEC |

| | | |
|---|---|---|
| *pgaABCD* | Poly-β-1,6-N-acetylglucosamine biosynthesis genes | ExPEC |
| *bap* | Biofilm-associated protein | ExPEC |
| *mrkA* | Type 3 fimbrial adhesin | ExPEC, UPEC |
| *nlpI* | Outer membrane lipoprotein | ExPEC |
| *pet* | Plasmid-encoded toxin | EAEC |
| *cea* | Colicin E1 immunity protein | ExPEC |
| *colE5* | Colicin E5 | ExPEC |
| *clpK1* | ATP-dependent protease Clp protease | ExPEC |
| *yehA, yehB, yehC* | Outer membrane proteins | ExPEC |
| *eatA* | Secreted autotransporter toxin | ETEC |
| *gad* | Glutamate decarboxylase system | ExPEC |
| *lpfA* | Long polar fimbriae subunit | ExPEC |
| *Pic* | Secreted autotransporter toxin | ExPEC |
| *SfaS* | S-fimbrial adhesin | ExPEC |
| *PapG, PapC, PapE, PapF, PapH, PapI, PapJ, PapK, PapX, PapY, PapZ* | P fimbrial adhesin subunits | ExPEC |
| *AfaD* | Afimbrial adhesin D | DAEC |
| *FimH* | Type 1 fimbrial adhesin | ExPEC, UPEC |
| *AfaE* | Afimbrial adhesin E | DAEC |
| *EspY2* | Type VI secretion system effector | ExPEC |
| *HlyF* | Hemolysin F | ExPEC |
| | **Klebsiella pneumoniae** | |
| *bap* | Biofilm-associated protein Bap | cKp |
| *capU* | Capsular polysaccharide biosynthesis protein CapU | hvKp |
| *clbA, clbB* | Colibactin biosynthesis proteins ClbA and ClbB | hvKp, cKp |
| *entABCDEF* | Enterobactin biosynthesis proteins EntA, EntB, EntC, EntD, EntE, and EntF | hvKp |
| *fepA* | Ferric enterobactin transport protein FepA | hvKp |
| *fhuC, fhuB, fhuA, fhuD* | Ferric hydroxamate receptor proteins FhuC, FhuB, FhuA, and FhuD | cKp |
| *fimC, fimD* | Chaperone proteins FimC and FimD | cKp |
| *FimH-1, fimA, fimE* | Type 1 fimbrial proteins FimH-1, FimA, and FimE | hvKp, cKp |
| *fyuA, iutA, iucA, iroB* | Siderophore receptor and biosynthesis proteins FyuA, IutA, IucA, and IroB | hvKp |
| *galF* | UTP-glucose-1-phosphate uridylyltransferase GalF | hvKp |
| *hlyA, hlyB, hlyC, hlyD* | Hemolysins HlyA, HlyB, HlyC, and HlyD | hvKp |
| *kfuABC* | Ferric iron uptake system proteins KfuA, KfuB, and KfuC | hvKp |
| *kpsM, kpsT* | Capsular polysaccharide transport proteins KpsM and KpsT | cKp |

| | | |
|---|---|---|
| *kpsS, kpsE, kpsF* | Capsular polysaccharide transport and export proteins KpsS, KpsE, and KpsF | hvKp |
| *lrp-1* | Leucine-responsive regulatory protein Lrp-1 | cKp |
| *magA, uge* | Outer membrane protein MagA and UDP-glucose 4-epimerase Uge | hvKp |
| *manC* | Mannose-1-phosphate guanylyltransferase ManC | cKp |
| *mrkD, mrkB, mrkE, mrkA* | Fimbrial assembly proteins MrkD, MrkB, MrkE, and MrkA | hvKp, cKp |
| *nfaE* | N-acetylmuramoyl-L-alanine amidase NfaE | cKp |
| *ompA, pilA* | Outer membrane protein OmpA and Pilus assembly protein PilA | hvKp |
| *pgaABCD, bap* | Biofilm formation proteins PgaABCD and Bap | cKp |
| *pilV* | Pilus assembly protein PilV | cKp |
| *RmpA2, RmpA, RcsAB, RcsC, RcsD* | Regulators of mucoid phenotype and response regulators RmpA2, RmpA, RcsAB, RcsC, and RcsD | hvKp |
| *rmpC* | Regulator of mucoid phenotype C | hvKp |
| *wza, wzb, wzc, wcaG, wcaJ* | Capsule export and O-antigen biosynthesis proteins Wza, Wzb, Wzc, WcaG, and WcaJ | hvKp |
| *wzm* | Lipopolysaccharide export system protein Wzm | cKp |
| *ybtS, ybtAEPQSTUX* | Yersiniabactin biosynthetic proteins YbtS, YbtAEPQSTUX | hvKp |
| *ycfM* | Hypothetical protein YcfM | cKp |

Table S3. Susceptibility Test compared to the genomic profile results

| | | **Susceptibility Test** | | | | | **Genomic Profile** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Ampicillin** | **Trimetho-Prime** | **Ceftazedime** | **Ciprofloxcin** | **Piperacillin-Tazobactam** | **Ampicillin** | **Trimetho-Prime** | **Ceftazedime** | **Ciproflo-xcin** | **Piperacillin-Tazobactam** |
| ***K.P*** | Sample 1 | R | S | R | R | R | R *(blaCTX-M-15 etc.)* | R *( OqxA,B)* | R *(blaCTX-M-15)* | R *(OqxA)* | R *(blaCTX-M-15)* |
| | Sample 2 | R | R | R | R | R | R *(blaSHV-5 etc.)* | R *( OqxA,B)* | R *(blaCTX-M-15)* | R *(OqxA)* | R *(blaCTX-M-15)* |
| | Sample 4 | R | S | S | S | S | R *(blaOXA-232 etc.)* | R *( OqxA,B)* | S | R *(OqxA)* | R *(blaOXA-232)* |
| | Sample 5 | R | R | S | R | S | R *(blaSHV-62 etc.)* | R *( OqxA,B)* | R *(blaACT-16)* | R *(OqxA)* | R *(blaCTX-M-15)* |
| | Sample 6 | R | S | S | S | S | R *(blaCTX-M-15 etc.)* | R *( OqxA,B)* | R *(blaCFE-1)* | R *(OqxA)* | R *(blaTEM-164)* |
| | Sample 10 | S | S | S | S | S | S | R *( OqxA,B)* | S | R *(OqxA)* | S |
| | Sample 11 | R | S | S | S | S | S | R *(dfrA14)* | S | R *(OqxB)* | S |
| | Sample 12 | R | S | S | S | S | R *(blaOXA-232 etc.)* | R *( OqxA,B)* | S | R *(OqxA)* | R *(blaOXA-232)* |
| | Sample 13 | R | R | R | S | R | S | R *(OqxB)* | S | R *(OqxA)* | S |
| | Sample 17 | R | S | S | S | R | S | R *(OqxB)* | S | R *(OqxA)* | S |
| ***E. COLI*** | Sample 3 | R | R | S | S | S | R *(blaCTX-M-27)* | S | R *(blaCTX-M-27)* | S | S |
| | Sample 7 | R | S | S | S | S | R *(blaOXA-10 etc.)* | S | S | R *(qnrS1)* | R *(blaOXA-10)* |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample 8 | R | R | S | R | S | R *(blaCTX-M-15)* | R *(OqxA,B)* | R *(blaCTX-M-15)* | R *(OqxA)* | S |
| Sample 9 | S | S | S | S | S | R *(blaCTX-M-15)* | R *(OqxA,B)* | R *(blaCTX-M-15)* | R *(OqxA)* | S |
| Sample 14 | S | R | S | S | S | S | R *(dfrA14)* | S | S | S |
| Sample 15 | R | R | S | S | S | S | R *(OqxA,B)* | S | R *(OqxA,B)* | S |
| Sample 16 | R | S | S | S | S | S | R *(OqxA,B)* | S | R *(OqxA,B)* | S |
| Sample 18 | R | S | S | S | S | S | R *(dfrA12)* | S | S | S |




**Figure S1. Culture Results in XLD Media**



**Figure S2. Culture Results in EMB Media**



**Figure S3. Culture Results in Salmonella-Shigella media**

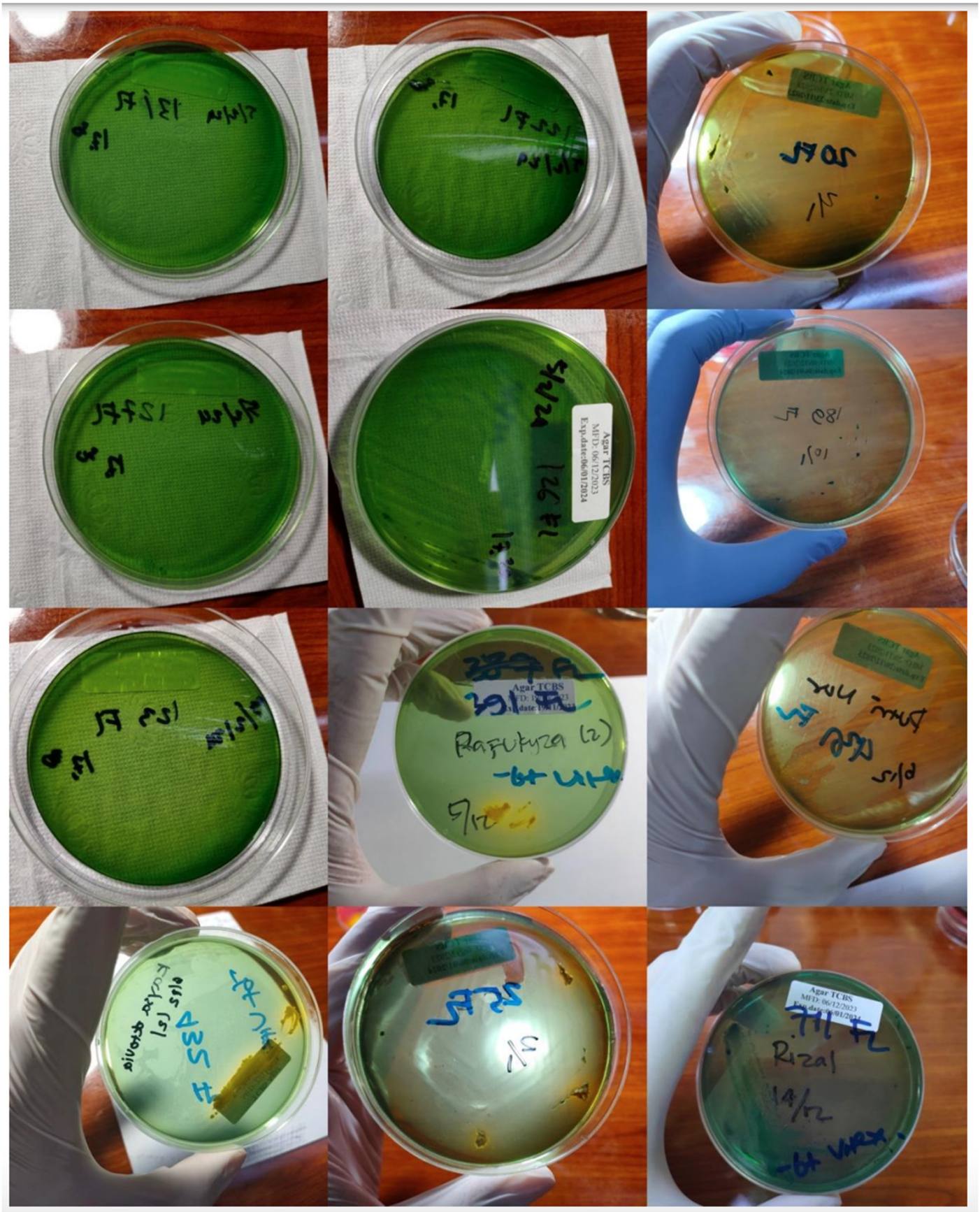



**Figure S4. Culture Results in TCBS media**




**Figure S5. Culture Results in MacConkey media**

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