

Supplementary Table 3 Virulence genes of *Citrobacter* species encoding adhesins, environmental stress response, iron uptake, siderophores, biofilm formation, and antigens determined in this study.

Virulence Response	Virulence genes	Product and Mechanism
Environmental stress response	<i>cheA, cheD, cheW, cheY</i>	Chemotaxis proteins production
Iron uptake	<i>chuA, chuS, chuT, chuU, chuW, chuX, chuY</i>	Heme-binding proteins
Biofilm formation	<i>csgA, csgB, csgC, csgD, csgE, csgF, csgG</i>	Curli production assembly
Iron uptake	<i>entA, entB, entC, entE, entF, entS</i>	Multi-enzyme complex formation carries out a series of biochemical reactions in the bacterial cell.
Siderophores	<i>fepA, fepB, fepC, fepD, fepG</i>	Ferrienterobactin transporter/ binding protein
Adhesins	<i>fimC, fimD, fimF, fimH</i>	Chaperone and usher proteins associated with virulent adhesion.
Adhesins	<i>flgG, flgH</i>	Flagellar protein associated with virulent adhesion.
Adhesins	<i>fliA, fliC, fliG, fliI, fliM, fliN, fliP</i>	Flagellar motor switch proteins associated with virulent adhesion.
Salmochelinsiderophores	<i>iroB, iroC, iroD, iroE, iroN, shuA</i>	Iron-salmochelins utilization plays a role in pathogenicity.
Biofilm formation	<i>misL</i>	Autotransporter protein

Environmental stress	<i>ompA</i>	Outer membrane protein A
Pathogenesis	<i>katB</i>	Resistance against peroxidase and facilitate phagocyte-mediated killing.
Antigens	<i>tviB, tviC, tviD, tviE</i>	Polysaccharide biosynthesis protein involved in capsule polymer synthesis.
Antigens/Biofilm Formation	<i>vexA, vexB, vexC, vexD, vexE</i>	Polysaccharide export protein produced that encodes for cell surface localization of the Capsular Polysaccharides.
