

## Biochemical Test and Identification of *Citrobacter freundii*

Basic Characteristics	Properties ( <i>Citrobacter freundii</i> )
Capsule	Negative (-ve)
Catalase	Positive (+ve)
Citrate	Positive (+ve)
Flagella	Positive (+ve)
Gas from glucose	Positive (+ve)
Gelatin Hydrolysis	Negative (-ve)
Gram Staining	Negative (-ve)
Growth in KCN	Positive (+ve)
H <sub>2</sub> S	Positive (+ve)
Indole	Negative (-ve)
Motility	Positive (+ve)
MR (Methyl Red)	Positive (+ve)
Nitrate Reduction	Positive (+ve)
OF (Oxidative-Fermentative)	Facultative Anaerobes
Oxidase	Negative (-ve)
Pigment	Negative (-ve)
Shape	Rods
Spore	Negative (-ve)
Urease	Variable
VP (Voges Proskauer)	Negative (-ve)
Fermentation of	
Adonitol	Negative (-ve)
Arabinose	Positive (+ve)
Arabitol	Negative (-ve)
Cellobiose	Positive (+ve)
DNase	Negative (-ve)
Dulcitol	Negative (-ve)
Glutamate	Positive (+ve)
Glycerol	Positive (+ve)
Glycogen	Positive (+ve)
Inositol	Negative (-ve)
Lactose	Positive (+ve)
Lactulose	Positive (+ve)
Malonate	Negative (-ve)
Maltitole	Negative (-ve)
Maltose	Positive (+ve)
Mannitol	Positive (+ve)

Mannose	Positive (+ve)
Melibiose	Positive (+ve)
Mucate	Positive (+ve)
MyoInositol	Positive (+ve)
Palatinose	Negative (-ve)
Raffinose	Variable
Rhamnose	Positive (+ve)
Salicin	Negative (-ve)
Sorbitol	Positive (+ve)
Sorbose	Positive (+ve)
Sucrose	Positive (+ve)
Tartrate	Negative (-ve)
Trehalose	Positive (+ve)
Xylose	Positive (+ve)
<b>Enzymatic Reactions</b>	
Acetate Utilization	Positive (+ve)
Aesculine Hydrolysis	Negative (-ve)
Arginine Dehydrolase	Variable
Esculin Hydrolysis	Negative (-ve)
Lipase	Negative (-ve)
Lysine decarboxylase	Negative (-ve)
ONPG ( $\beta$ -galactosidase)	Positive (+ve)
Ornithine decarboxylase	Negative (-ve)
Phenylalanine deaminase	Negative (-ve)
Tryptophan deaminase	Variable
Tyrosine hydrolysis	Positive (+ve)