

Defined Media:

MgM pH 5.0 – *this is a minimal media that is acidic and low in magnesium. Recipe obtained from J. Adelman and C. Dettweiler. Medium is very similar to that of Beuzon et al. (1999) used to look at pH dependent secretion of SPI-2 effector sseB.*

10 mM MES pH 5.0
7.5 mM (NH₄)₂SO₄
5 mM KCl
0.5 mM K₂SO₄
1 mM KH₂PO₄
10 μM MgCl₂
2 mM Glucose
.002% His

* For neutral or slightly above neutral pH, use Tris as a buffer – pK_a of Tris is 6.8, so it buffers better from 6.5-7.5. For MES, pK_a is at 5.8, buffers well from pH 5.4-6.4
Also – 100 mM MES and Tris are most likely better than 10 mM for buffering purposes

N Minimal medium (Nelson and Kennedy, 1971) – *this is a medium originally developed to study Mg²⁺ ion transport in E. coli. These transport systems are turned on by PhoP/Q. It thus turns out that this medium is a useful medium for inducing expression of PhoP/Q and therefore of PhoP/Q activated genes*

5 mM KCl
7.5 mM (NH₄)₂SO₄
0.5 mM K₂SO₄
1 mM KH₂PO₄
0.1 mM Tris-HCl pH 7.4
10 μM or 10 mM MgCl₂
0.2% glucose
required amino acids at 0.1 g/L

Modified N Minimal medium (Groisman 1997) – *this medium was used to induce expression of pmrA/B 2-component system and consequent polymyxin B resistance*

Identical to N Minimal medium but for following additions:

38 mM glycerol
0.1% Casamino acids
Adjusted to either pH 7.7 or pH 5.8

□ As can be seen, both N-minimal and MgM medias are very similar. It is likely that starvation conditions (for C, N, P, S) as well as low magnesium are all responsible for maximal induction of PhoP/Q regulated genes.