

Supplementary information

Table S1 Recipe of the minimal medium used to prepare an agar for isolating the denitrifiers

| Composition | Amount |
|---|---------------|
| Solution I | |
| K ₂ HPO ₄ ·3H ₂ O | 0.87 g |
| KH ₂ PO ₄ | 0.54 g |
| KNO ₃ | 5 g |
| (NH ₄) ₂ SO ₄ | 1 g |
| NaHCO ₃ | 4 g |
| Agar powder for microbiology | 15 g |
| Distilled water | 980 mL |
| Solution II | |
| MgSO ₄ ·7H ₂ O | 2 g |
| Distilled water | 100 mL |
| Solution III | |
| CaCl ₂ ·2H ₂ O | 200 mg |
| FeSO ₄ ·7H ₂ O | 100 mg |
| MnSO ₄ ·H ₂ O | 50 mg |
| Na ₂ MoO ₄ ·2H ₂ O | 10 mg |
| CuSO ₄ ·5H ₂ O | 10 mg |
| 0.1 N HCl | 100 mL |

Table S2 Details of experiments carried out in this study

| Bacterial inocula | HCO ₃ ⁻ amount | Initial N concentration |
|-------------------------------------|--------------------------------------|---|
| <i>Pseudomonas</i> sp. strain Is1 | Plentiful ^c | NO ₃ ⁻ as 20 mg N L ⁻¹ |
| | | NO ₂ ⁻ as 20 mg N L ⁻¹ |
| <i>Pannonibacter</i> sp. strain Is6 | Plentiful ^c | NO ₃ ⁻ as 20 mg N L ⁻¹ |
| | | NO ₂ ⁻ as 20 mg N L ⁻¹ |
| <i>Bacillus</i> sp. strain Is15 | Plentiful ^c | NO ₃ ⁻ as 20 mg N L ⁻¹ |
| | | NO ₂ ⁻ as 20 mg N L ⁻¹ |
| <i>Thauera</i> sp. strain Is13 | Inadequate ^a | NO ₃ ⁻ as 20 mg N L ⁻¹ |
| | | NO ₂ ⁻ as 20 mg N L ⁻¹ |
| | Sufficient ^b | NO ₃ ⁻ as 20 mg N L ⁻¹ |
| | | NO ₂ ⁻ as 20 mg N L ⁻¹ |
| | Plentiful ^c | NO ₃ ⁻ as 20 mg N L ⁻¹ |
| | | NO ₂ ⁻ as 20 mg N L ⁻¹ |

^a no HCO₃⁻ addition; ^b 275 mg HCO₃⁻ L⁻¹; ^c 6886 mg HCO₃⁻ L⁻¹

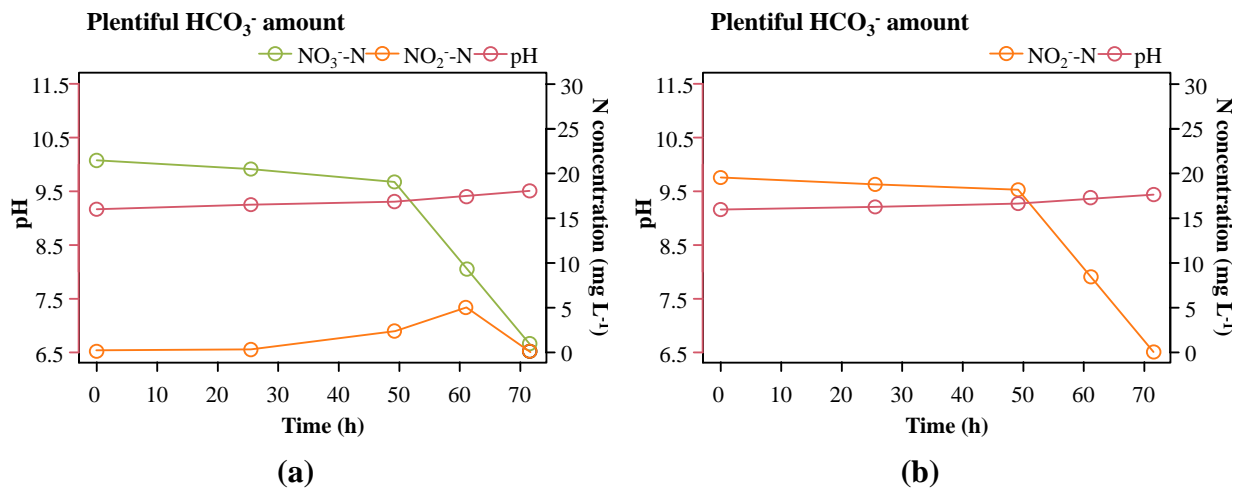


Figure S1 Profiles of NO₃⁻ and NO₂⁻ concentrations and pH in a system inoculated with *Pseudomonas* sp. strain Is1 when spiked with (a) NO₃⁻ and (b) NO₂⁻ at plentifully supplementary HCO₃⁻ amount.

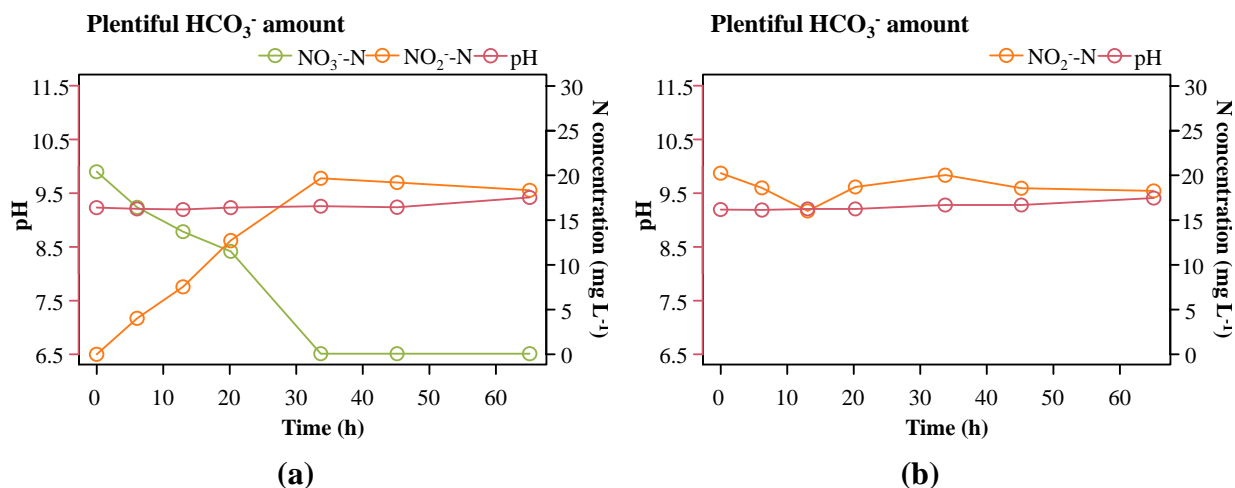


Figure S2 Profiles of NO_3^- and NO_2^- concentrations and pH in a system inoculated with *Pannonibacter* sp. strain Is6 when spiked with (a) NO_3^- and (b) NO_2^- at plentifully supplementary HCO_3^- amount.

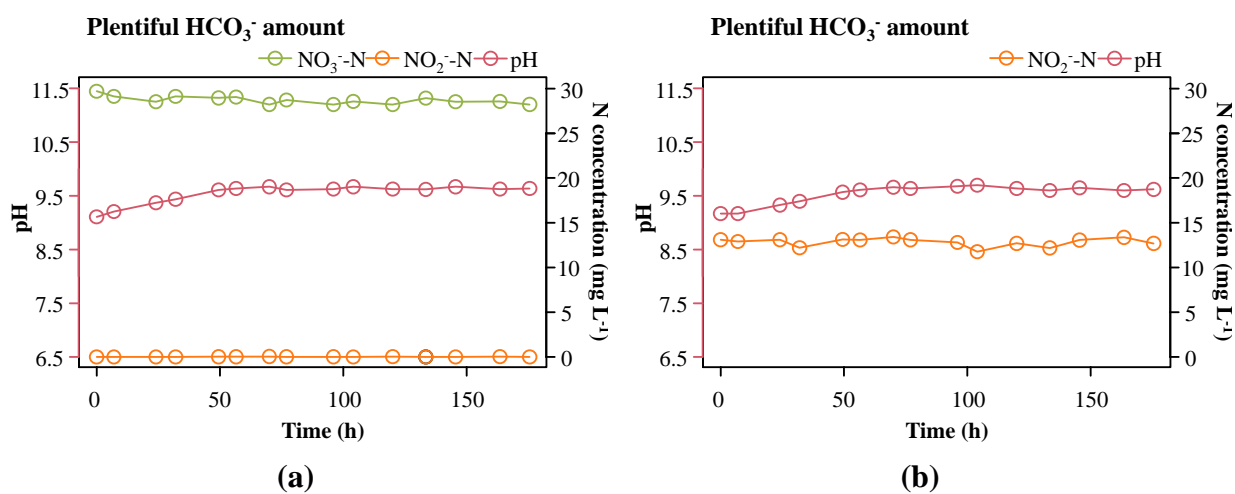


Figure S3 Profiles of NO_3^- and NO_2^- concentrations and pH in a system inoculated with *Bacillus* sp. strain Is15 when spiked with (a) NO_3^- and (b) NO_2^- at plentifully supplementary HCO_3^- amount.