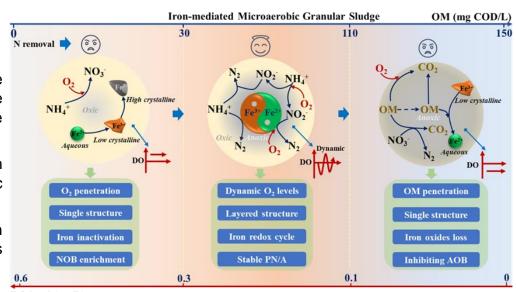


NEWRI INNOVATION

ORGANIC MATTER-INDUCED DISSOLVED OXYGEN PENETRATION DEPTHS DYNAMICS ENHANCES IRON-CYCLING DRIVEN AMMONIUM OXIDATION IN MGS

PERFORMANCE AND MECHANISMS

- We proposed, the PN/A microaerobic granular sludge (MGS) formed by a micro-oxygen-driven iron redox cycle with continuous aeration as a novel strategy to achieve efficient nitrogen removal.
- Due to the formation of MGS, the bio(chemistry)-driven iron cycle could be formed with the support of anaerobic ammonium oxidation coupled to iron reduction.
- Fluctuating organic matter varied dissolved oxygen penetration depths in MGS, regulating redox conditions and activating inert iron oxides.



DO level (mg/L) **Dual metabolism Potential Feammox process** Iron-mediated MGS OARC hdh H₄ hszABC NH2OH nirK/S Structure of MGS Inf. NH₄⁺-N → Eff. NH₄⁺-N → 100 Feammo, H2OH Nitrogen content (mg/L) NH, +-N removal efficiency 80 60 Iron cycle 40 20 90 120 150 180 210 Time (d) Profile of iron-mediated Microgranule

Presented by

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