Fabrication of B/O-doped graphitic carbon nitride photocatalysts for efficient degradation of ciprofloxacin and sustainable wastewater treatment

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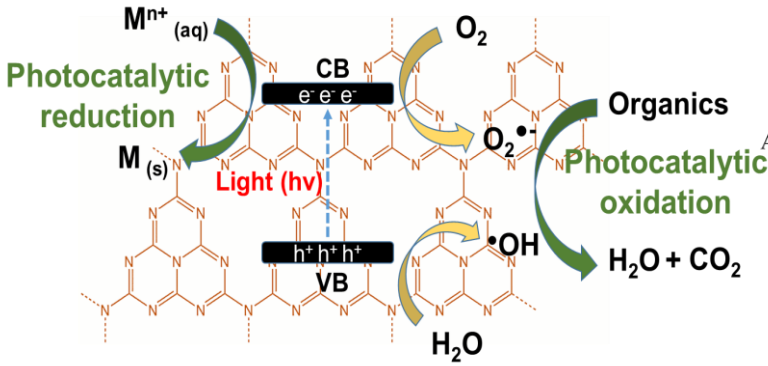
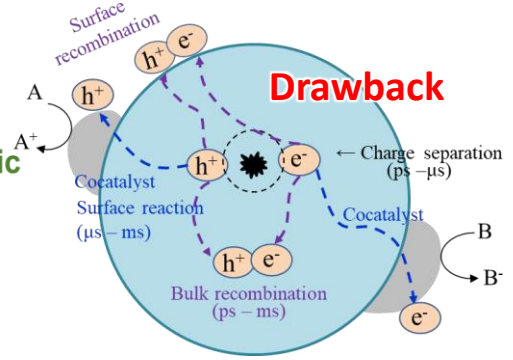
Graphitic carbon nitride (CN)



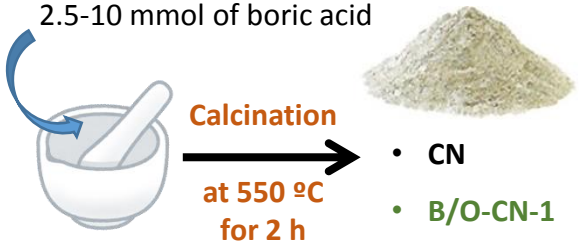


- High photocatalytic activity for organic degradation under visible light irradiation
- Desirable energy band gap (*Eg*) about 2.70 eV.
- High thermal stability and chemical stability

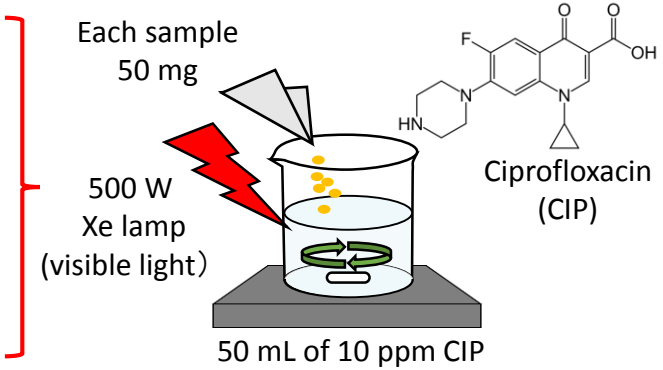
Objective

To enhance photocatalytic activity of CN by **formation of B and O doped CN (B/O-CN)** via one pot synthesis.

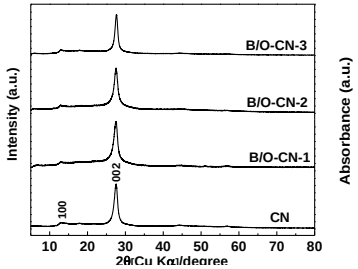
Synthesis and photocatalytic test of B/O-CN

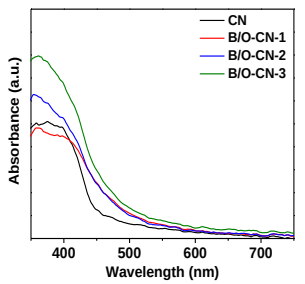


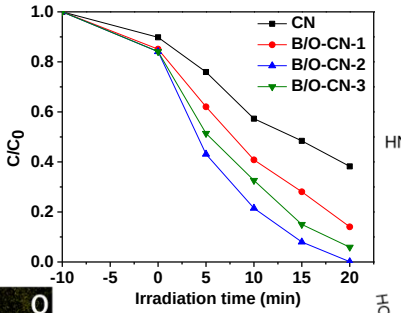
- **CN**
- **B/O-CN-1**
- **B/O-CN-2**
- **B/O-CN-3**

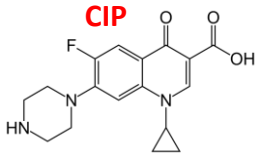


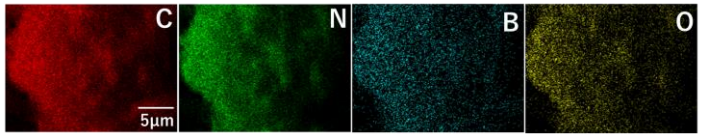
Results and Discussion

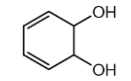


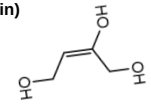


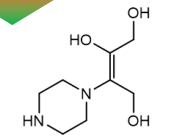


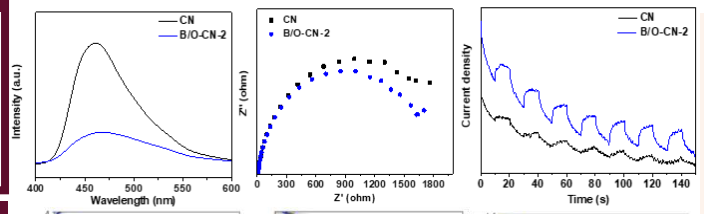


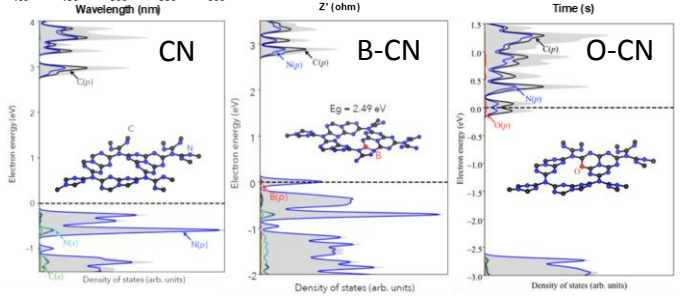


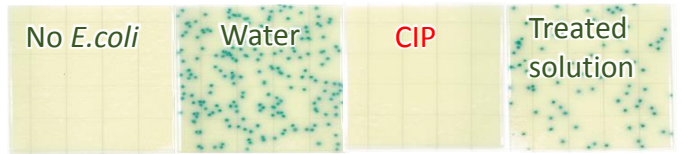












- XRD and SEM-EDX results confirmed the successfully formation of B and O doped CN.
- UV-DRS and DFT suggest the reduction of *Eg* of the B/O-CN.
- The doped samples exhibited higher CIP degradation activity than pure CN due to high charge separation and transfer.

Conclusions

- The introduction of B and O atom into the CN improve optical and electrical properties and avoid the electron-hole pair recombination.