

Supplementary information

Biomimetic channelled TiO₂/C catalyst with extremely low Pt loading for formaldehyde oxidation

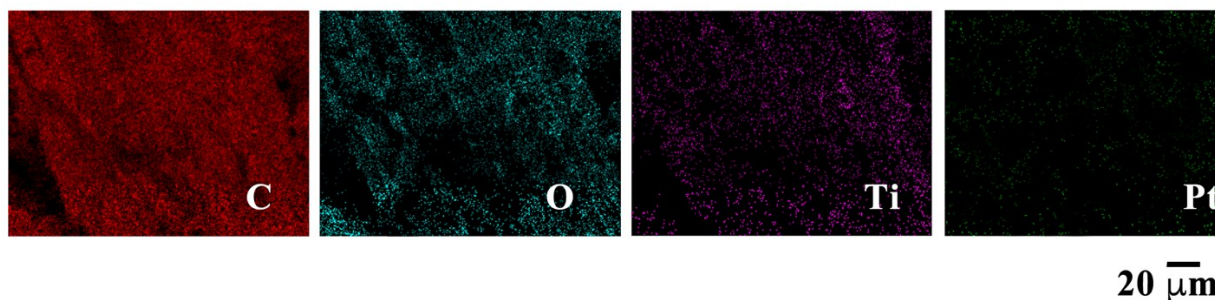


Figure S1. EDS elemental mapping of C, Ti, O, Pt for obtained TiO₂/C material (SEM image is shown in manuscript Fig.2 A).

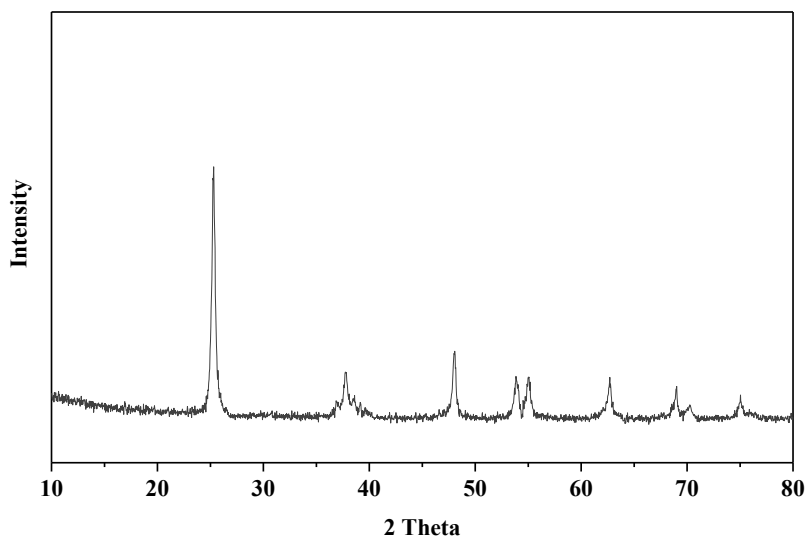


Figure S2. XRD pattern of sol-gel prepared TiO₂ without wood template. The result indicates the anatase phase of TiO₂.

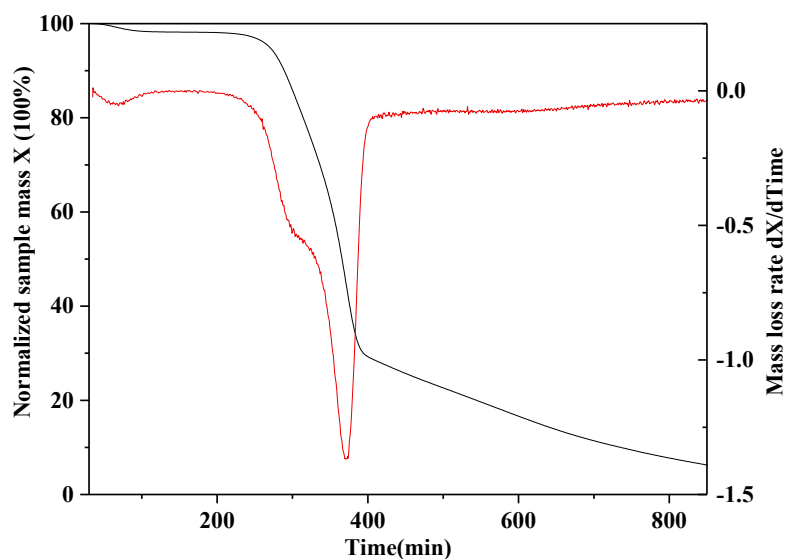


Figure S3. TGA curve of original wood chip without Ti and Pt precursor loading.

Table S1 Pt content determination in samples by ICP-MS

| Samples* | Sample weight (mg) | Pt (mg) | Pt content (%) |
|--------------------|--------------------|---------|----------------|
| #1(400°C) | 15.2 | 0.014 | 0.092 |
| #2(500°C) | 12.8 | 0.012 | 0.095 |
| #3(600°C) | 11.5 | 0.011 | 0.098 |
| #4(400°C-1) | 18.5 | 0.012 | 0.063 |
| #5(400°C-2) | 25.1 | 0.010 | 0.041 |
| #6(sol-gel method) | 16.3 | 0.018 | 0.112 |

*The temperature noted in brackets are calcination temperature in the preparation.

Table S2 Surface area (S_{BET}), pore volume (V_{pore}) and pore size (d_{pore}) distribution of prepared porous TiO_2/C material

| Temp. (°C) | S_{BET} ($\text{m}^2 \text{g}^{-1}$) | V_{pore} ($\text{cm}^3 \text{g}^{-1}$) | d_{pore} (nm) |
|------------|---|---|------------------------|
| 400 | 41.5 | 0.055 | 2-10; 12-18 |
| 500 | 24.1 | 0.037 | 2-10 |
| 600 | 30.0 | 0.037 | 2-10 |