

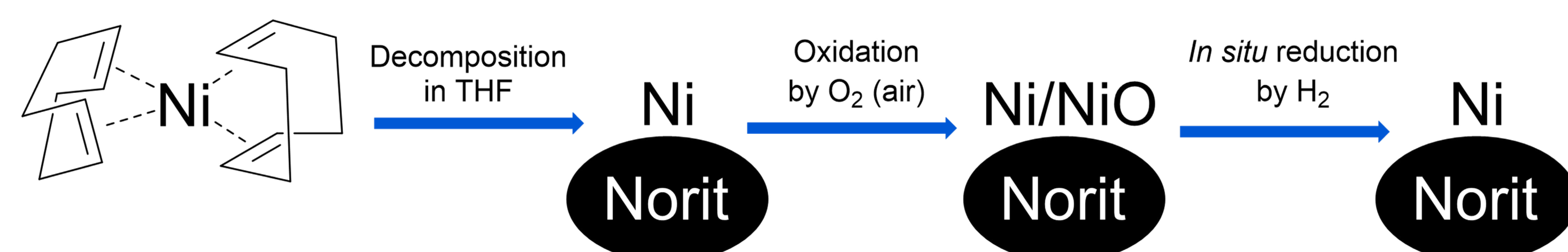
# Nickel Catalysts Prepared by Decomposition of Ni(0) complexes on Activated Carbon for Hydrogenation of Organic Compounds



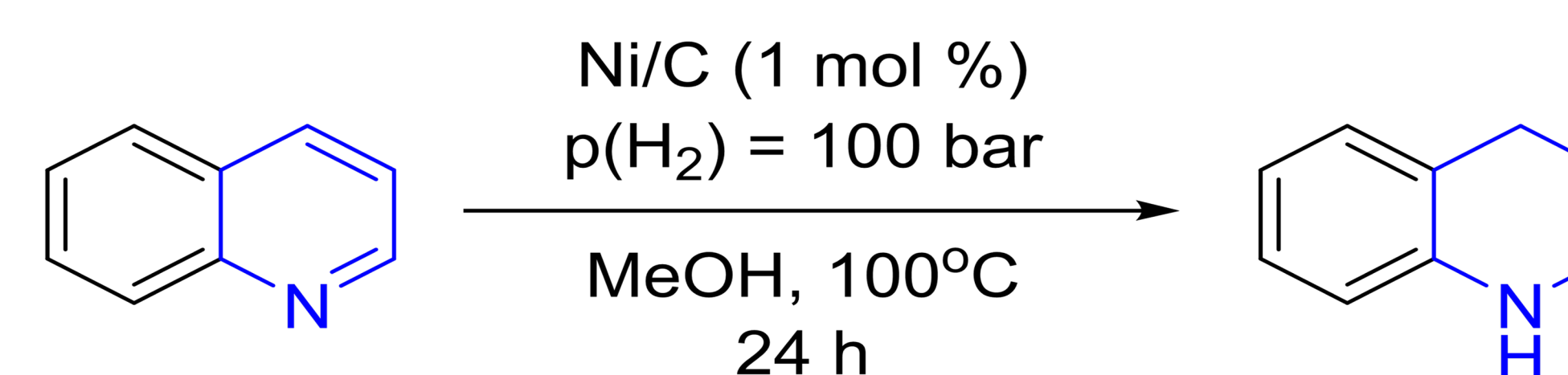
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## General Idea

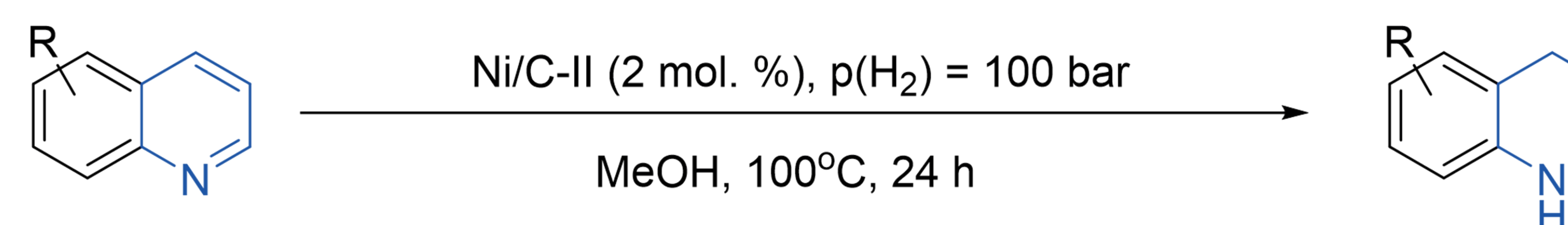
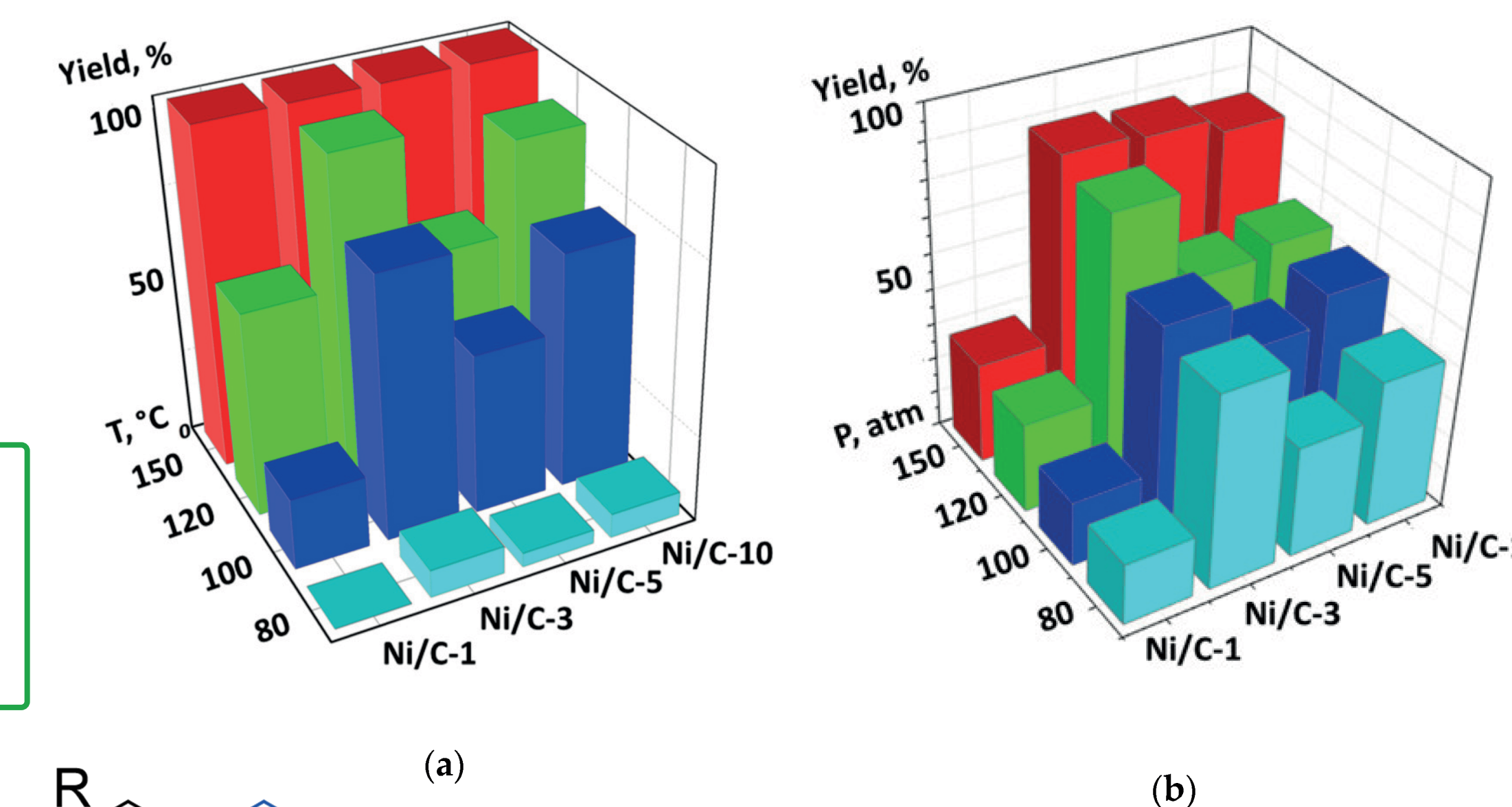
The decomposition of organometallic compounds is a promising strategy for the deposition of metallic nanoparticles and the preparation of active heterogeneous catalysts.



## Performance in catalytic hydrogenation of quinoline

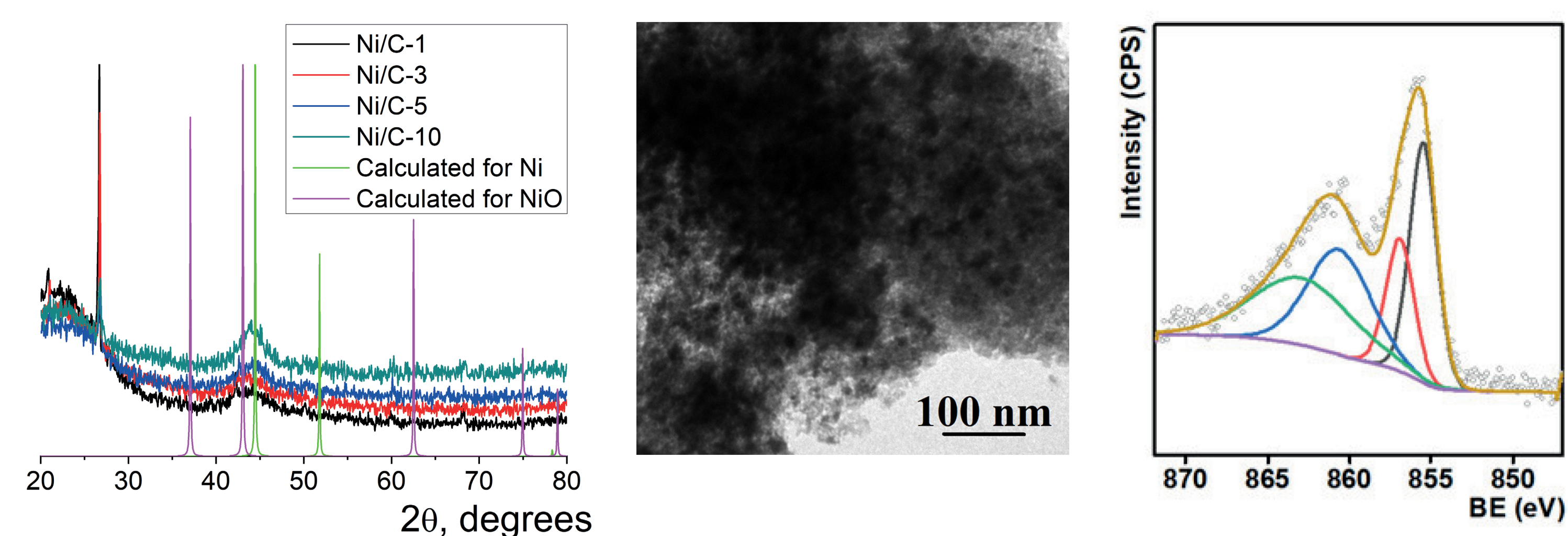


The composite containing 3 wt. % of Ni exhibited the highest catalytic activity in quinoline hydrogenation under the investigated conditions.



## Catalyst Characterization

- Composites can be stored under air
- Nickel surface is completely oxidized under storage, but at least partially reduced *in situ* in hydrogenation reactions according to XPS
- Increase in the Ni loading in the row of composites prepared from Ni(COD)<sub>2</sub> led to the growth in the size of Ni nanoparticles, which formed upon reduction with H<sub>2</sub>, and their size changed from 0.7 nm to 7.4 nm according to CO chemisorption experiments
- Small size of nickel-containing particles is confirmed by XRD and TEM



XRD

TEM

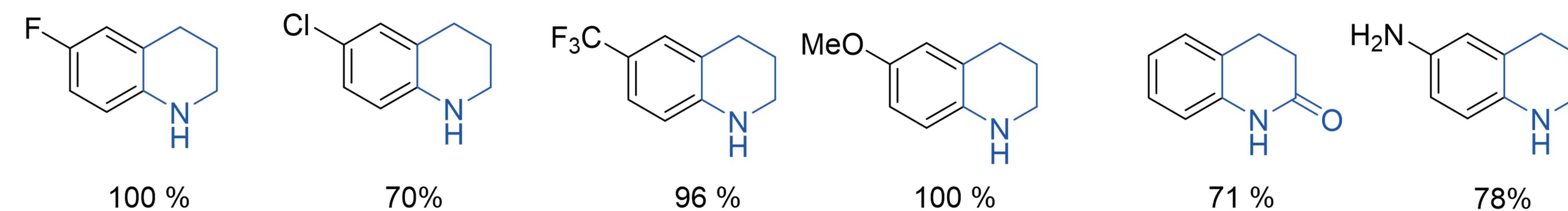
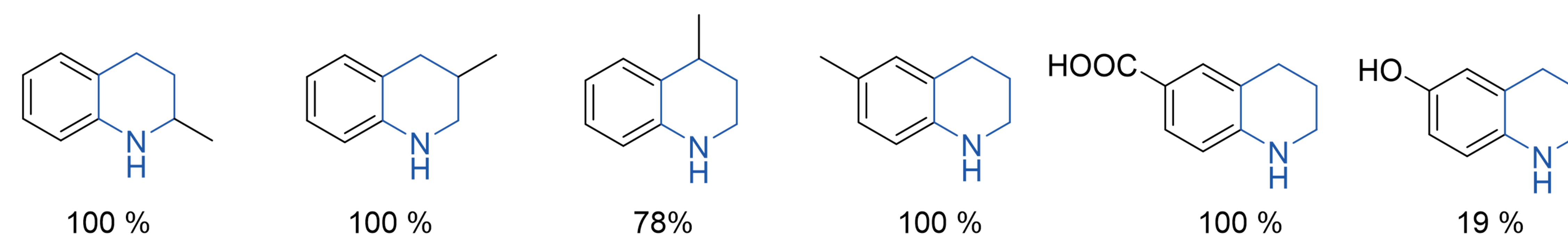
XPS

## Contact

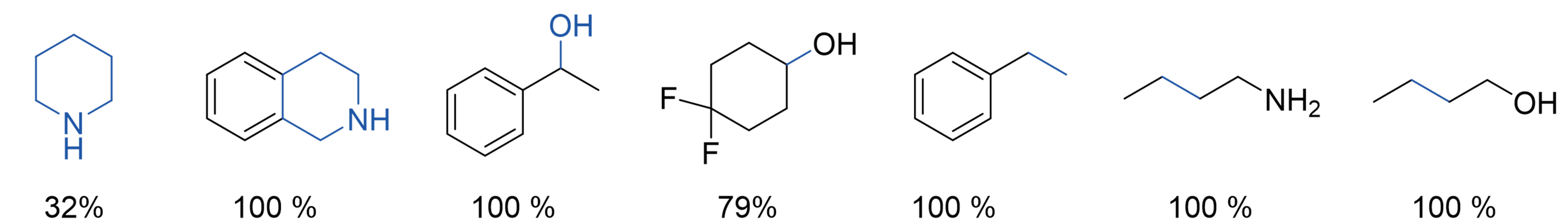
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## Scope of catalytic hydrogenation with Ni/C

### Quinolines



### Heterocycles



### Ketones

### Alkenes and alkynes

