Supplementary Materials

Efficient hydrogenation of xylose to xylitol over Ni-Re bimetallic nanoparticle catalyst

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1. TEM results

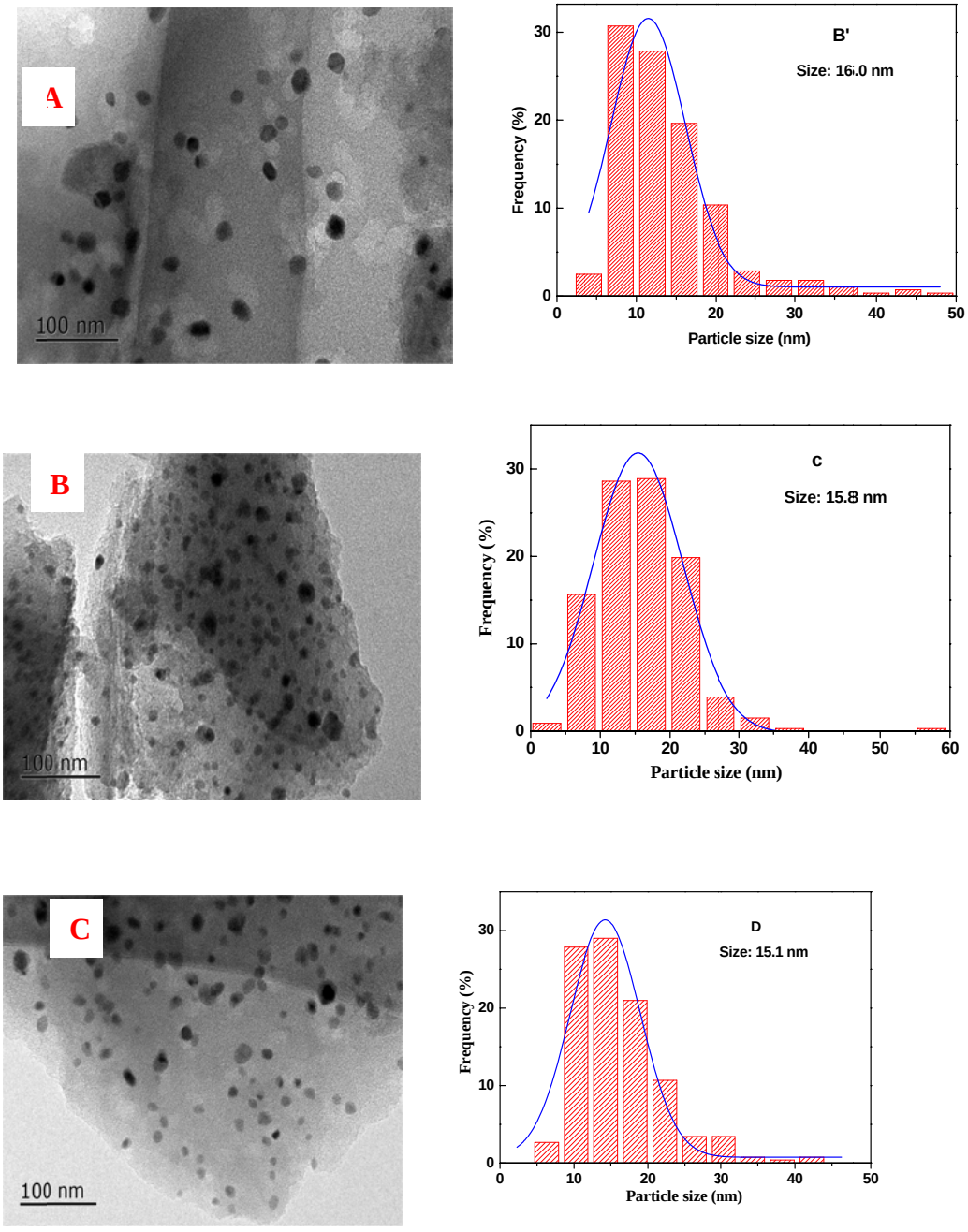

Figure S1 TEM images and their corresponding size distribution of (A, A′) Ni-Re/AC (n_{Ni}:n_{Re} =10:1) (B, B′) Ni-Re/AC (n_{Ni}:n_{Re} =4:1) (C, C′) Ni-Re/AC (n_{Ni}:n_{Re} =2:1)

2. XPS results

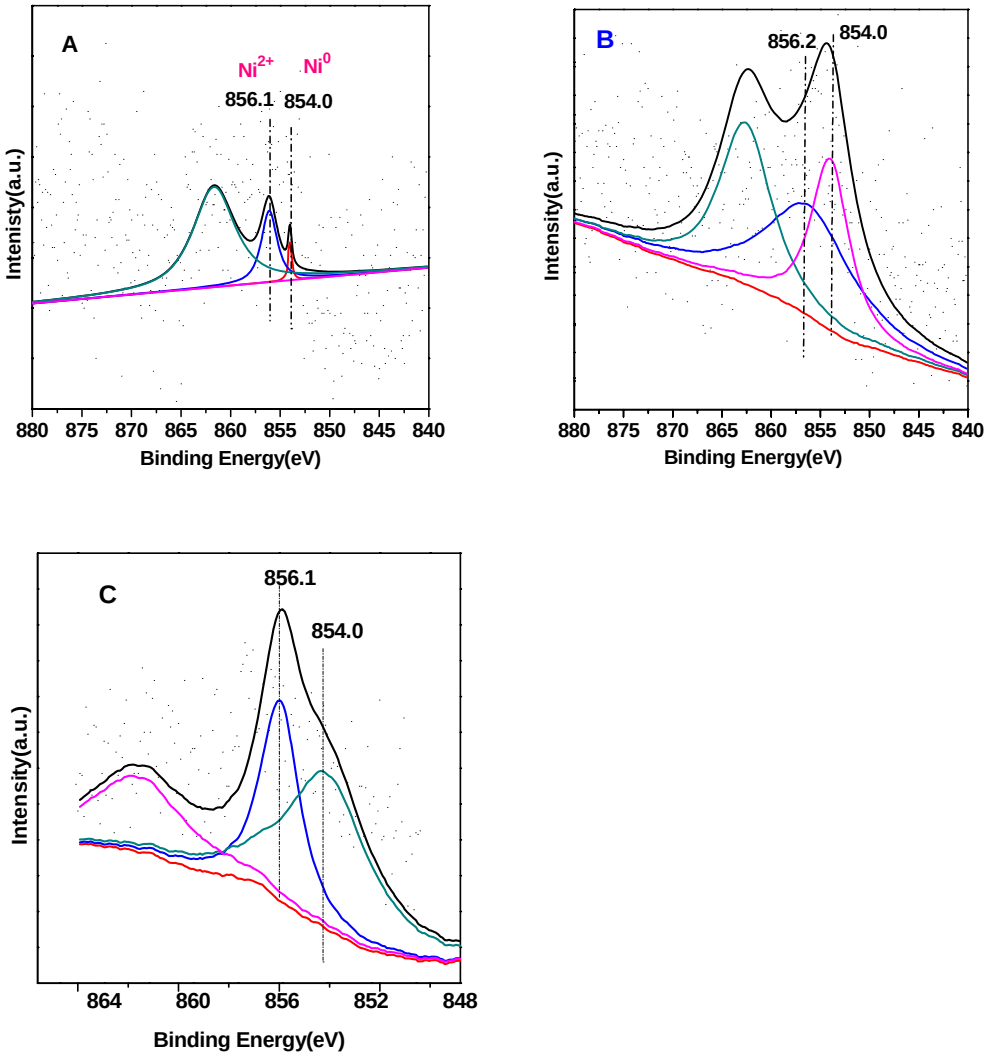

Figure S2 Ni 2p XPS of (A) Ni-Re/AC (n_{Ni}:n_{Re} =10:1) (B) Ni-Re/AC (n_{Ni}:n_{Re} =4:1) and (C) Ni-Re/AC (n_{Ni}:n_{Re} =2:1).

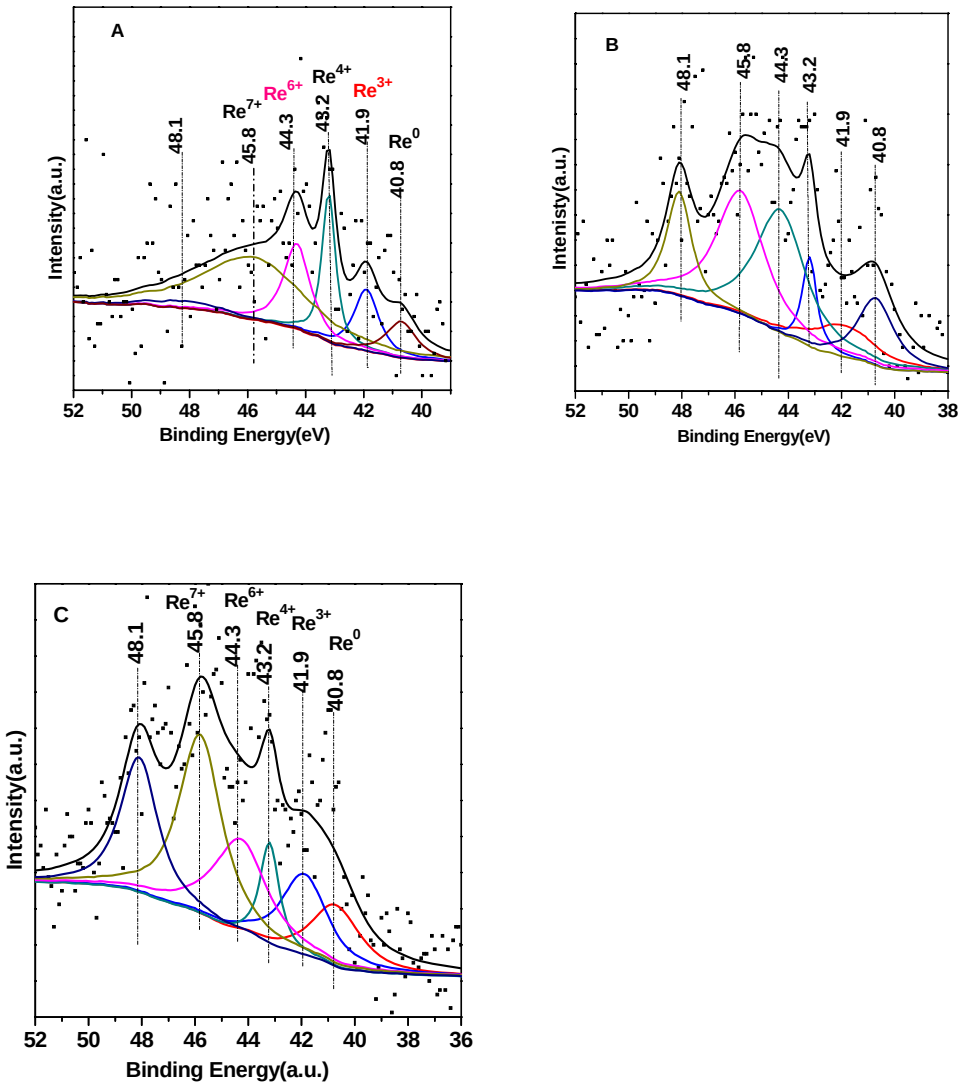

Figure S3 Re 4f XPS of (A) Ni-Re/AC (n_{Ni}:n_{Re} =10:1) (B) Ni-Re/AC (n_{Ni}:n_{Re} =4:1) and (C) Ni-Re/AC (n_{Ni}:n_{Re} =2:1).

3. The hydrolysis reaction of *Camellia oleifera* shell

Table S1 The hydrolysis reaction of *Camellia oleifera* shell

Entry	Temparture(^{o}C)	H_2SO_4 concentration (wt.%)	Time (h)	Xylitol yield (%)
1	60	0.5	0.5	27.8
2	60	1	1	95.1
3	60	1.5	2	96.8
4	80	0.5	1	92.3
5	80	1	2	98.2
6	80	1.5	0.5	96.5
7	100	0.5	2	88.9
8	100	1	0.5	75.7
9	100	1.5	1	63.6