**Supporting Information**

Pd(0) nanoparticles immobilized on multi-nitrogen functionalized Halloysite for promoting Sonogashira reaction: Studying the role of the number of surface nitrogens in catalytic performance

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Figure S1. Reported TEM images of pure HNTs.

Reference:

<https://www.sigmaaldrich.com/catalog/product/aldrich/685445?lang=en&region=IR>

**From Sigma-Aldrich website**

**1H NMR and 13C NMR spectra of some selected samples:**



Figure S2. 1H NMR of 1,2-diphenylethyne.



Figure S3. 13C NMR of 1,2-diphenylethyne.



Figure S4. 1H NMR of 1-methyl-4-(phenylethynyl)benzene.



Figure S5. 13C NMR of 1-methyl-4-(phenylethynyl)benzene.



Figure S6. 1H NMR of 1-nitro-4-(phenylethynyl)benzene.



Figure S7. 13C NMR of 1-nitro-4-(phenylethynyl)benzene.



Figure S8. 1H NMR of 1-methoxy-4-(phenylethynyl)benzene.



Figure S9. 13C NMR of 1-methoxy-4-(phenylethynyl)benzene,



Figure S10. 1H NMR of 3-(4-nitrophenyl)prop-2-yn-1-ol.



Figure S11. 13C NMR of 3-(4-nitrophenyl)prop-2-yn-1-ol.