Potential of production of carbon nanotubes from olive oil in Middle East and Gulf Region

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The cost of the production of carbon nanotubes (CNTs) is one of the great challenges. The pyrolysis is a simple and economic technique for synthesizing CNTs at low temperatures. Fabrication and characterization of CNTs using pyrolysis process and from environmentally green source (olive oil). The precursors, the catalyst, and the carrier gas affect the cost of production. The production of olive oil in Egypt, Middle East and gulf region dedicated them as a great production area for CNTs. olive oil is used as precursors and compared with nickel chloride (5 wt. %) as a catalyst and argon as a carrier gas. Si wafer has been used as a substrate and operated at 900 °C. The CNTs were characterized by FESEM (Field emission scanning electron microscope), HR-TEM (High Resolution Transmission Electron Microscopy), X-ray photoelectron spectroscopy (XPS), and Raman spectroscopy. The results reveal that as-grown nanotubes are well graphitized with olive. CNTs were prepared by catalytic decomposition of the oil over the metal particles dispersed and supported on the substrate by pyrolysis method. The results illustrated that the different densities of the oils and ratios of saturated hydrocarbons in olive oil caused the production of different carbon products.

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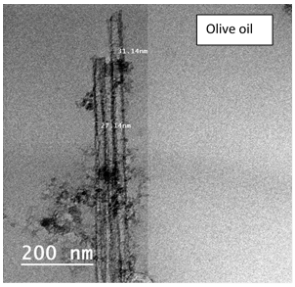


Fig (1): TEM of CNTs produced by olive oil

References:

1. S.Iijima, T. Ichihashi, Nature ,363, (1993) 603.

2. R.H. Baughman, A.A. Zakhidov , W.A. de Heer , Science,297, (2002)787.

3. S.Fan , M.G. Chapline, N.R Franklin , T.W Tombler , A.M. Cassell , H. Dai ,Science,283,(1999) 512.

4. D.Yhongjie ,H.H. Jason , G.R. Andrew ,T.C. Daniel, Nature,384,(1996) 147.

5. J.T. Sander , R.M. Alwin ,D. Cees , Nature ,393,(1998) 49.

6. H.Ago , K. Petritsch, M.S.Shaffer , A.Windle , R.H. Friend , Adv. Mater. ,11, (1999) 1281.

7. C. Journet, W.K.Maser, P.Bernier, A.Loiseau , S.Lefrant, ,P.Deniard, R. Lee, Nature ,388, (1997) 756

Biography:

Fatma abdel mouez has completed her PhD at 2018 from Ein-Shams University and the Master from Helwan University at 2013.she is doctor researcher at surface treatment and corrosion control lab, CMRDI. She is a doctor researcher. She has published about 10 papers in Scopus journal. She has been serving as editorial board member of Editorial Board Membership in SCIREA Journal of Chemistry, Editorial Manager of Journal of Analytical and Applied Pyrolysis, Reviewer at RSC Advances reviewer community, reviewer of International Journal of Materials Science and Applications. She has been in the Organizing Committee for International Conference on Material Science and Engineering (ICMSE-RAC 2019, 2013). Her H-index is 2 according to publon. She is interested in working in smart coating, antibacterial coat, Nano coating. She is also has 7 years' experience in powder technology.

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