

Accepted Manuscript

Synthesis of $\text{Fe}_3\text{O}_4@\text{SiO}_2@\text{OSi}(\text{CH}_2)_3\text{NHRN}(\text{CH}_2\text{PPh}_2)_2\text{PdCl}_2$ Type Nanocomposite Complexes: Highly Efficient and Magnetically-Recoverable Catalysts for Vitamin K_3 Synthesis

Serhan Uruş

PII: S0308-8146(16)30995-5

DOI: <http://dx.doi.org/10.1016/j.foodchem.2016.06.093>

Reference: FOCH 19434

To appear in: *Food Chemistry*

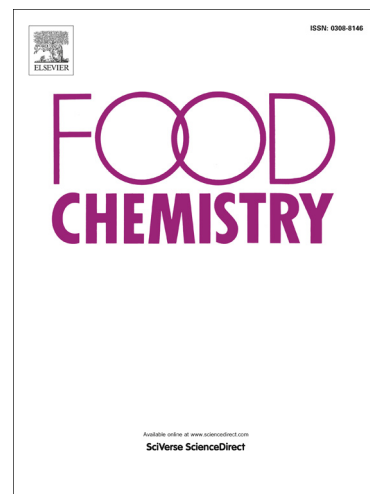
Received Date: 10 March 2016

Revised Date: 15 June 2016

Accepted Date: 26 June 2016

Please cite this article as: Uruş, S., Synthesis of $\text{Fe}_3\text{O}_4@\text{SiO}_2@\text{OSi}(\text{CH}_2)_3\text{NHRN}(\text{CH}_2\text{PPh}_2)_2\text{PdCl}_2$ Type Nanocomposite Complexes: Highly Efficient and Magnetically-Recoverable Catalysts for Vitamin K_3 Synthesis, *Food Chemistry* (2016), doi: <http://dx.doi.org/10.1016/j.foodchem.2016.06.093>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



**Synthesis of $\text{Fe}_3\text{O}_4@\text{SiO}_2@\text{OSi}(\text{CH}_2)_3\text{NHRN}(\text{CH}_2\text{PPh}_2)_2\text{PdCl}_2$ Type Nanocomposite
Complexes: Highly Efficient and Magnetically-Recoverable Catalysts for Vitamin K_3
Synthesis**

Serhan Uruş

*Chemistry Department, Faculty of Science and Letters, Kahramanmaraş, Sütçü İmam University,
46100, Kahramanmaraş, Turkey.*

*Research and Development Centre for University-Industry-Public Relations,
Kahramanmaraş, Sütçü İmam University, 46100, Kahramanmaraş, Turkey*

Abstract

The synthesis of aminomethylphosphine-metal complexes have opened a new perspective to the catalytic applications of organic compounds. Magnetic Fe_3O_4 nano-core was synthesized using the closed quartz tube with teflon cover and microwaved 200°C for 1 h with power controlled instrument set to max. 600 watt. Novel nano-composite supported; $\text{Fe}_3\text{O}_4@\text{SiO}_2(\text{CH}_2)_3\text{NHArN}(\text{CH}_2\text{PPh}_2)_2$ and $\text{Fe}_3\text{O}_4@\text{SiO}_2(\text{CH}_2)_3\text{N}(\text{CH}_2\text{PPh}_2)_2$ type *bis*(diphenylphosphinomethyl)amino ligands and their Pd(II) complexes have been synthesized and characterized with FT-IR, SEM, EDX, TEM, UV-Visible, XRD and TG/DTA techniques. All the complexes were used as heterogeneous catalysts in the oxidation of 2-methyl naphthalene (2MN) to 2-methyl-1, 4-naphthoquinone (Vitamin K_3 , menadione, 2MNQ) in the presence of hydrogen peroxide and acetic acid. Selectivity reached about 55-60 % with a conversion of 90-96 % using the nano-magnetite supported aminomethylphosphine-Pd(II) complexes. The complexes were very active in three times in the catalytic recycling experiments in five catalytic cycles.

Keywords: Phosphine, aminophosphine, Fe_3O_4 , nano, palladium, catalyst, vitamin k, menadione.

*Corresponding author. Tel: +903442801457, Fax: +903442801352
E-mail address: serhanurus@yahoo.co.uk (S. Uruş).

Download English Version:

<https://daneshyari.com/en/article/7587337>

Download Persian Version:

<https://daneshyari.com/article/7587337>

[Daneshyari.com](https://daneshyari.com)