

Accepted Manuscript

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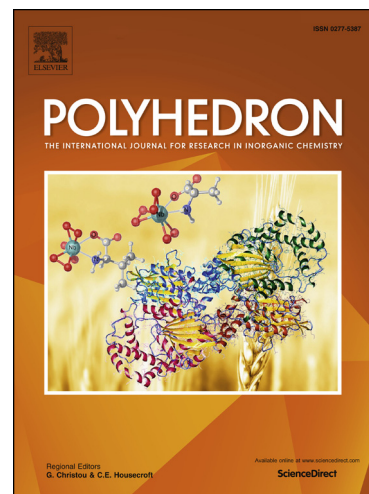
PII: S0277-5387(17)30500-4
DOI: <http://dx.doi.org/10.1016/j.poly.2017.07.017>
Reference: POLY 12753

To appear in: *Polyhedron*

Received Date: 3 April 2017
Revised Date: 6 July 2017
Accepted Date: 7 July 2017

Please cite this article as: E. Tanrıverdi Eçik, E. Şenkuytu, H. İbişoğlu, Y. Zorlu, G. Yenilmez Çiftçi, Synthesis and fluorescence properties of cyclophosphazenes containing thiazole or thiadiazole rings, *Polyhedron* (2017), doi: <http://dx.doi.org/10.1016/j.poly.2017.07.017>

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Synthesis and fluorescence properties of cyclophosphazenes containing thiazole or thiadiazole rings

Esra Tanrıverdi Eçik, Elif Şenkuytu, Hanife İbişoğlu, Yunus Zorlu, Gönül Yenilmez Çiftçi*

Department of Chemistry, Gebze Technical University, Gebze 41400, Kocaeli, Turkey

*Corresponding author: Tel.: 00 90 262 605 3011; fax.: 00 90 262 605 30 05.

E-mail address: yenilmez@gtu.edu.tr

ABSTRACT

In the present work, a series of cyclophosphazenes containing thiazole or thiadiazole rings (**5-8**) was synthesized. The hexakis-[3'-(1',2',3'-thiadiazol-4'-yl)phenoxy] (**5**) and hexakis-[5'-oxy-2'-methylbenzothiazole] (**6**) cyclotriphosphazene derivatives were synthesized from the reactions of hexachlorocyclotriphosphazatriene (**1**) with 3-(1,2,3-thiadiazol-4-yl)phenol (**3**) and 5-hydroxy-2-methylbenzothiazole (**4**), respectively. The octakis-[3'-(1',2',3'-thiadiazol-4'-yl)phenoxy]cyclotetraphosphazene (**7**) was obtained from the reaction of octachlorocyclotetraphosphazetriaene (**2**) with compound **3**. Furthermore, heptakis-(5'-oxy-2'-methylbenzothiazole)monochlorocyclotetraphosphazene (**8**) was also synthesized from the reaction of compound **2** with **4**. All the obtained compounds (**5-8**) were fully characterized by elemental analysis and spectroscopic techniques (such as mass, ^1H , ^{13}C and ^{31}P NMR). The molecular and crystal structure of **6** was also characterized by X-ray crystallography. Compounds **5-8** are reported for the first time in this study. The fluorescence properties of these cyclophosphazene derivatives (**5-8**) were investigated in tetrahydrofuran (THF) solution.

Keywords: Phosphazene, Cyclophosphazene, Thiazole, Thiadiazole, Fluorescence.

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