

Supplementary Info

Phosphorus-nitrogen compounds. Part 37. Syntheses and structural characterizations, biological activities of mono and bis(4-fluorobenzyl)spirocyclotetraphosphazenes

Gamze Elmas^{*a}, Aytuğ Okumuş^a, Pelin Sevinç^a, Zeynel Kılıç^{*a}, Leyla Açıkb, Mustafa Atalan^b, Mustafa Türk^c, Gökberk Deniz^d, Tuncer Hökelek^e

^a*Department of Chemistry, Ankara University, 06100 Ankara, Turkey*

^b*Department of Biology, Gazi University, 06500 Ankara, Turkey*

^c*Department of Bioengineering, Kırıkkale University, 71450 Yahşihan-Kırıkkale, Turkey*

^d*Faculty of Medicine, Hacettepe University, 06100 Ankara, Turkey*

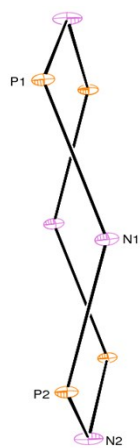
^e*Department of Physics, Hacettepe University, 06800 Ankara, Turkey*

E-mail address: zkilic@science.ankara.edu.tr (Z. Kılıç)
gegemen@ankara.edu.tr (G. Elmas)

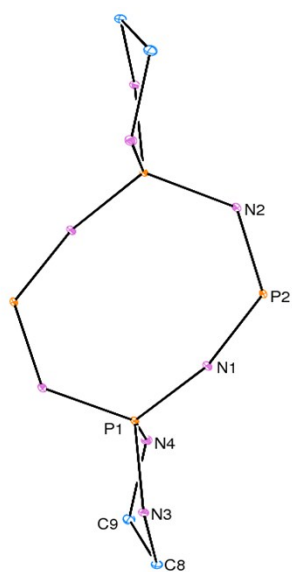
Contents:

Figures

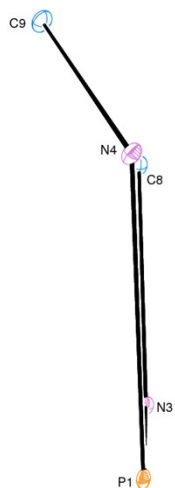
- **Fig. S1** The conformations of (a) the tetramer ring, (b) the all rings and (c) the five-membered spiro-ring of **7**.
- **Fig. S2** The conformations of (a) the tetramer ring, (b) the all rings and (c) the six-membered spiro-ring of **9**.
- **Fig. S3** The conformations of (a) the tetramer ring, (b) the all rings and (c) the six-membered spiro-ring of **12**.
- **Fig. S4** The packing diagram of compound **9**.
- **Fig. S5** The packing diagram of compound **12**.



(a)

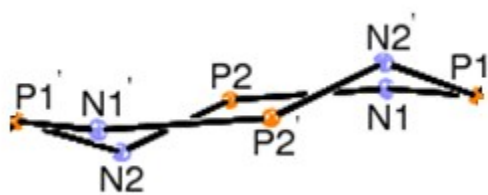


(b)

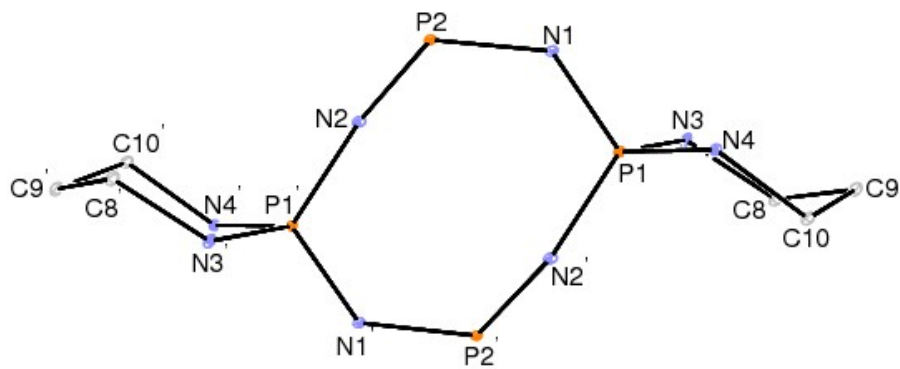


(c)

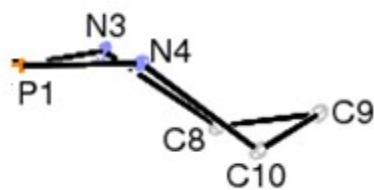
Fig. S1 The conformations of (a) the tetramer ring, (b) the all rings and (c) the five-membered spiro-ring of 7.



(a)



(b)



(c)

Fig. S2 The conformations of (a) the tetramer ring, (b) the all rings and (c) the six-membered spiro-ring of **9**.

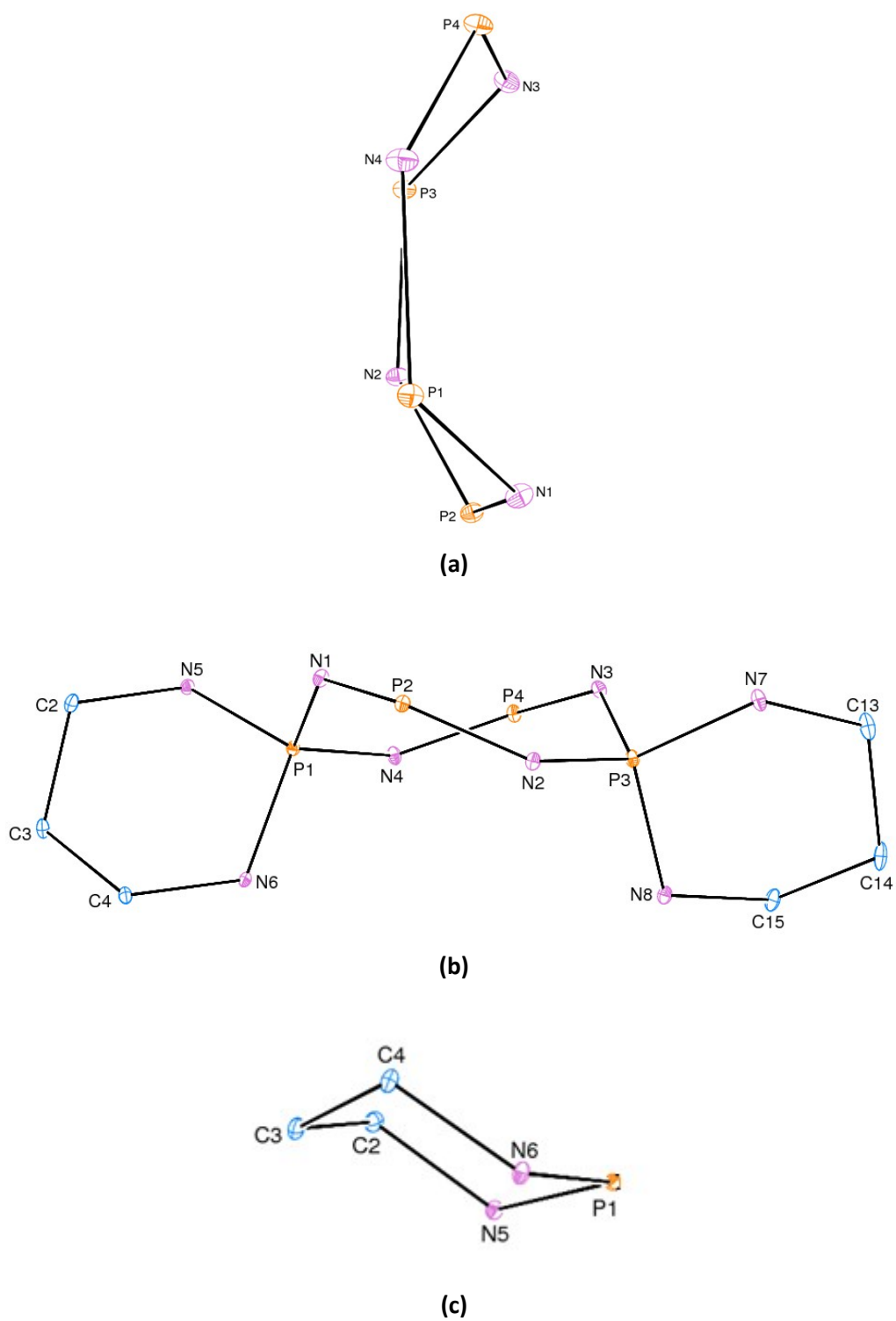


Fig. S3 The conformations of (a) the tetramer ring, (b) the all rings and (c) the six-membered spiro-ring of **12**.

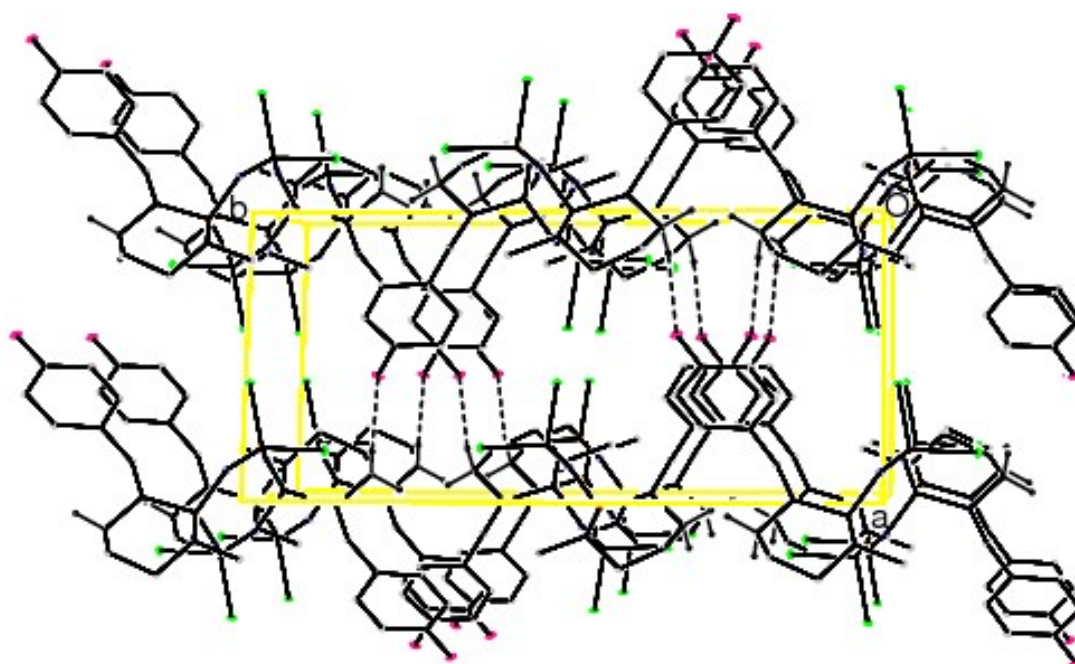


Fig. S4 The packing diagram of compound **9**.

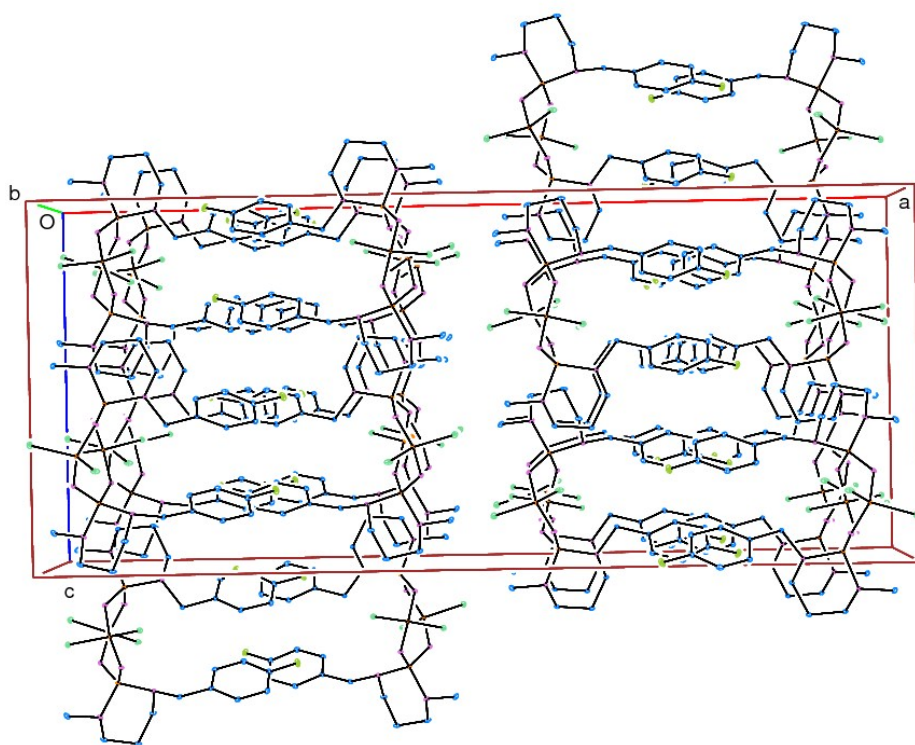


Fig. S5 The packing diagram of compound **12**.