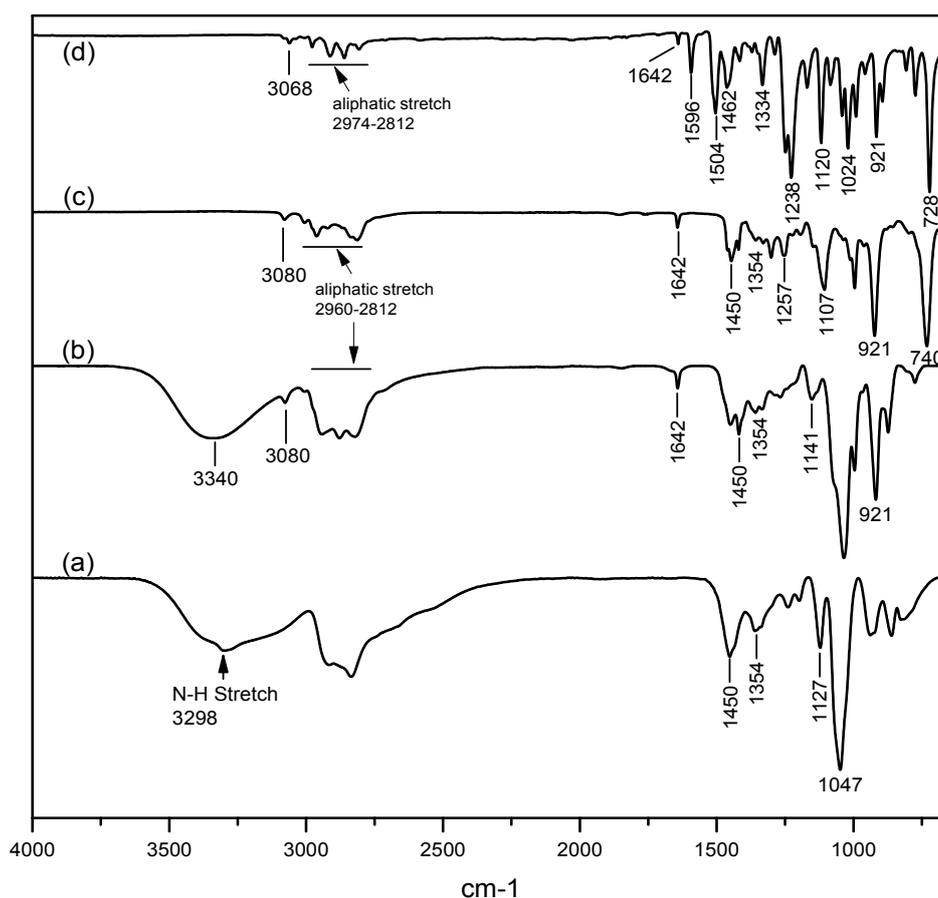


# Supplementary Materials: Synthesis and Characterization of Macrocyclic Polyether *N,N'*-diallyl-7,16-diaza-1,4,10,13-tetraoxa-dibenzo-18-crown-6

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Figure S1a shows the characteristic secondary N-H amine band maximum at  $3298\text{ cm}^{-1}$  together with its aliphatic secondary C-N amine band at  $1127\text{ cm}^{-1}$  for the starting bis(2-hydroxyethyl)amine. This secondary N-H amine band disappears in **2**, **3** and **4** and new C-N tertiary amine band formed exhibit at  $1141\text{ cm}^{-1}$  for compound **2**;  $1107\text{ cm}^{-1}$  for **3** while in **4**, the same band appear at  $1120\text{ cm}^{-1}$  all being indicative of the occurrence of the allyl reaction [1,2]. The existence of the appended allyl fragment in compound **2**, **3** and **4** is also confirmed by the presence of the bands at  $3080$  and  $3006$  (b,c) and  $3068$  and  $3006\text{ cm}^{-1}$  (d) which are typical of =C-H stretches, and the moderate band at  $1642\text{ cm}^{-1}$  due to stretching vibration of the C=C double bond. The infrared spectrum of the azacrown polyether showed new bands at  $1596$ ,  $1504$  and  $1456\text{ cm}^{-1}$  attributable to C=C aromatic stretch of the catechol fragments. Similar data representing benzene ring signals were also reported by Correa and Scott [3].



**Figure S1.** ATR-FTIR spectra of: (a) the starting bis(2-hydroxyethyl)amine **1**; (b) 2,2'-(prop-2-en-1-ylimino)diethanol **2** obtained after allylation; (c) *N,N*-bis(2-chloroethyl)prop-2-en-1-amine **3** obtained after chlorination; and (d) *N,N'*-diallyl-7,16-diaza-1,4,10,13-tetraoxa-dibenzo-18-crown-6 **4**.

The UV-Vis spectrum of **4** (Figure 3) was recorded in cyclohexane ( $2.28 \times 10^{-4}\text{ M}$ ). The product has two UV maxima of  $236\text{ nm}$  ( $\epsilon\ 12,368$ ) and  $278\text{ nm}$  ( $\epsilon\ 11,184$ ) both of which are  $\pi \rightarrow \pi^*$  and can be attributed to the benzene fragment of the crown ether cavity. A related macrocycle, dibenzo-18-

crown-6 polyether, which was synthesized by Pedersen [4], and has all-oxygen crown ether cavity was reported with similar absorption values hence supporting the possibility that the two signals arise as a result of the presence of benzene ring.

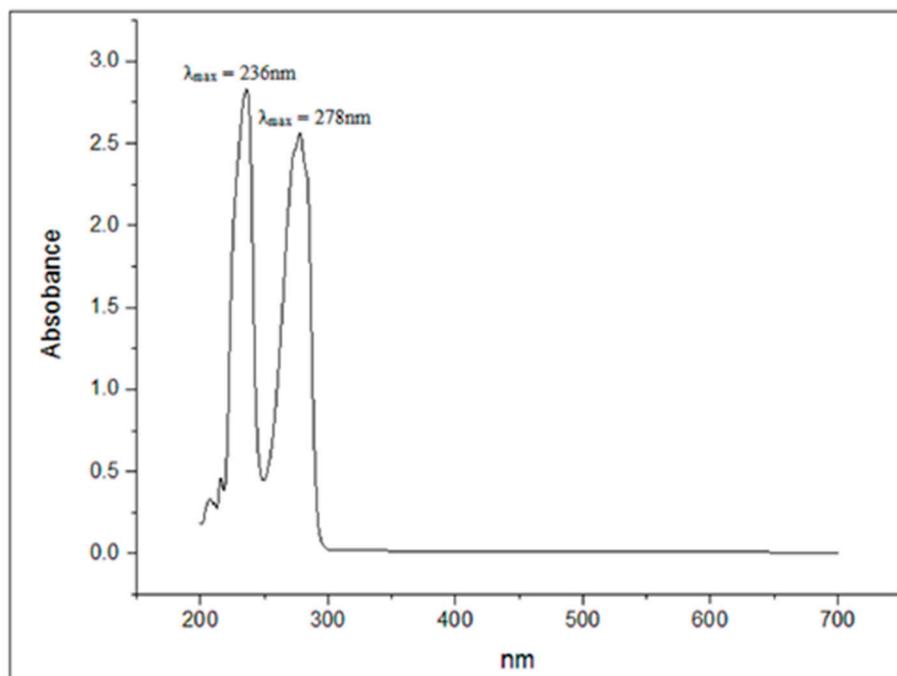


Figure S2. UV-Vis spectrum of the azacrown polyether in cyclohexane.

## References

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4. Pedersen, C.J. Macrocyclic polyethers: Dibenzo-18-crown-6 polyether and dicyclo-18-crown-6 polyether. *Org. Synth.* **1972**, *52*, 66, doi:10.15227/orgsyn.052.0066.