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Supporting information for article:

**Synthesis and characterization of carbonate-encapsulated ytterbium-
and yttrium-containing polyoxotungstates**

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Sadakane**

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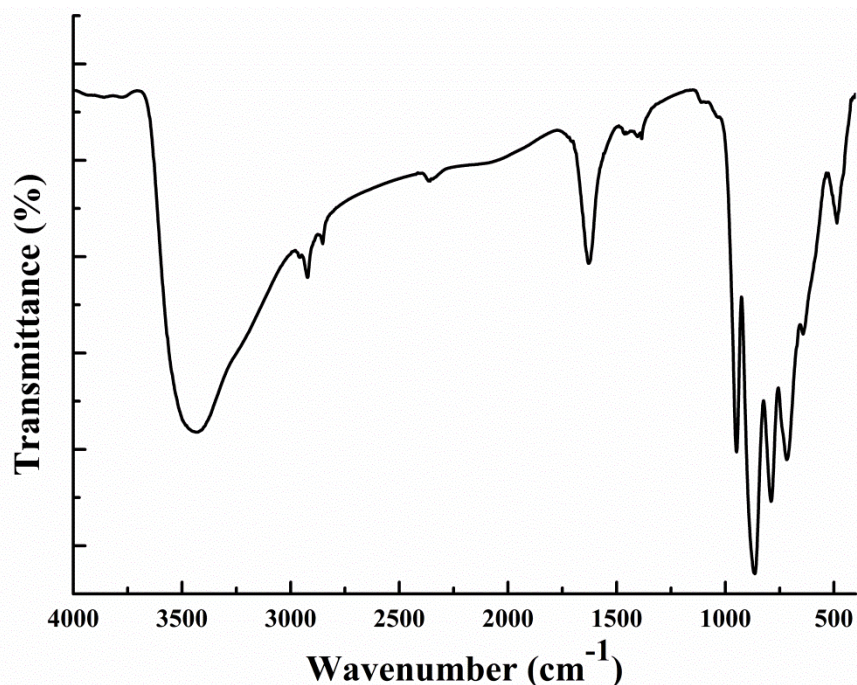


Figure S1. FTIR spectrum of compound **1a** recorded on KBr pellets.

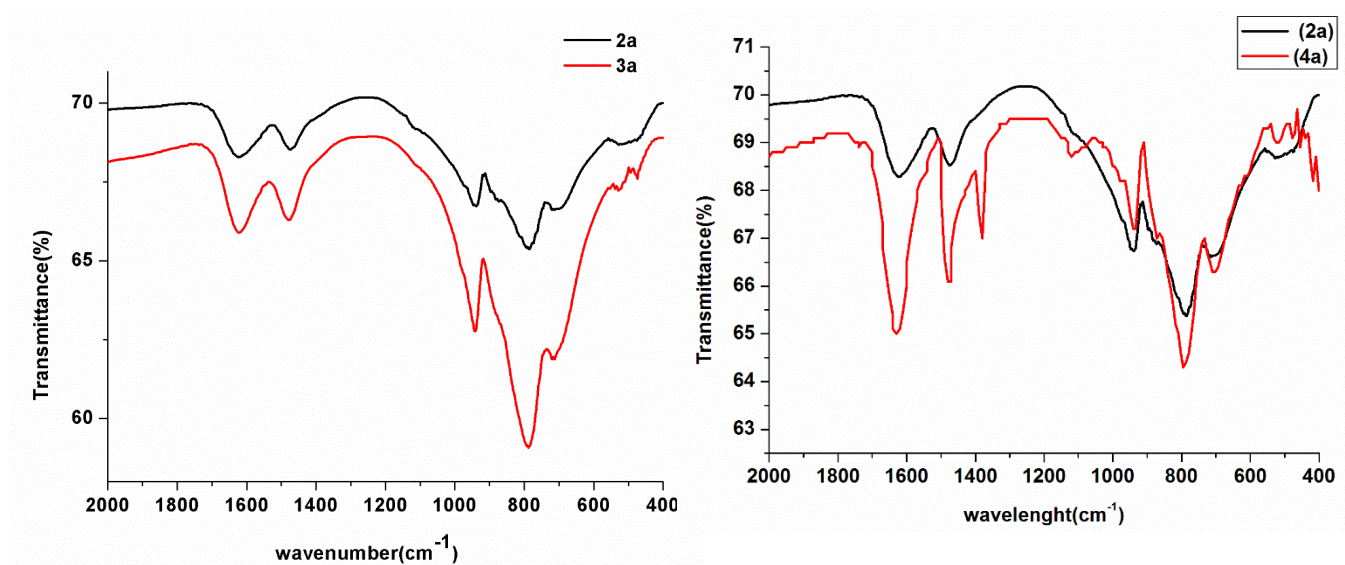


Figure S2. FT-IR spectrum of compound **2a** and **3a** recorded on KBr pellets and FT-IR Spectra of **2a** compared with **4a**

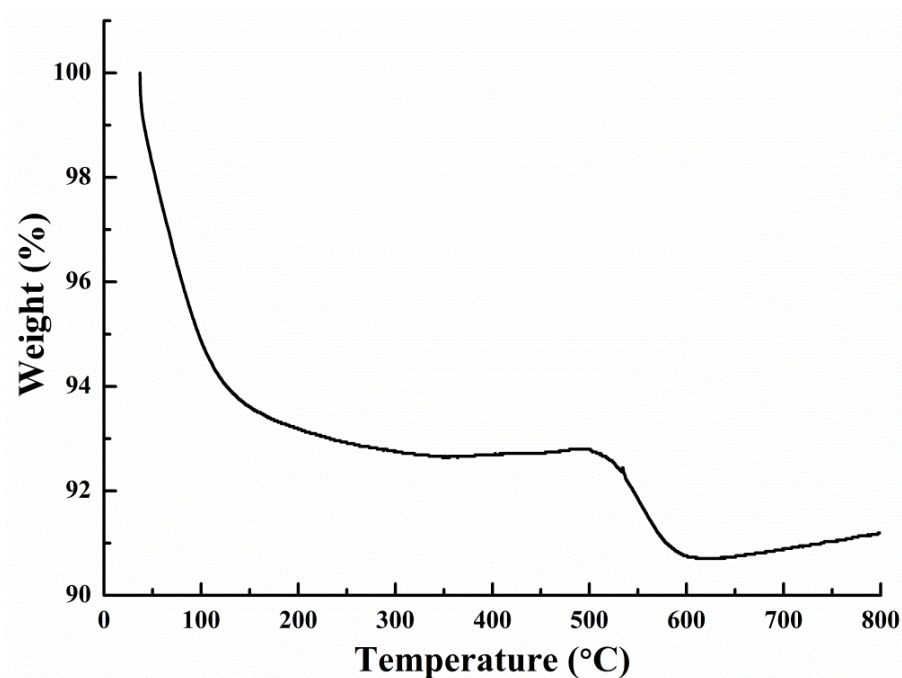


Figure S3. The thermogram of compound **1a** showing the loss of crystalline water molecules in first step (from 35 to 300 °C) and in second step (from 500 to 600 °C) the loss of CO₂ & CO from acetate & carbonate groups, under the nitrogen atmosphere.

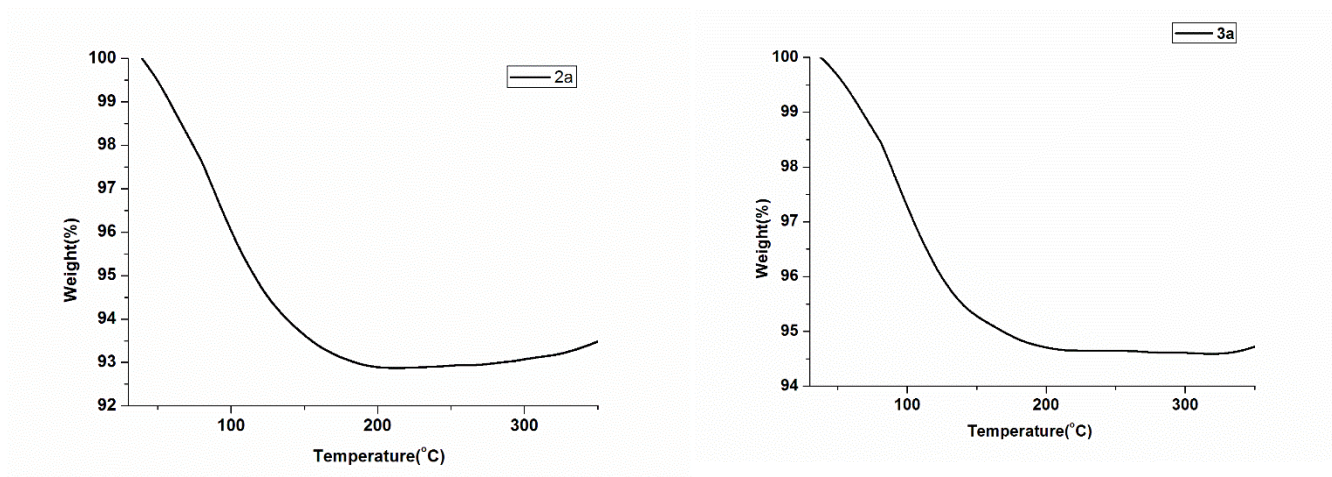
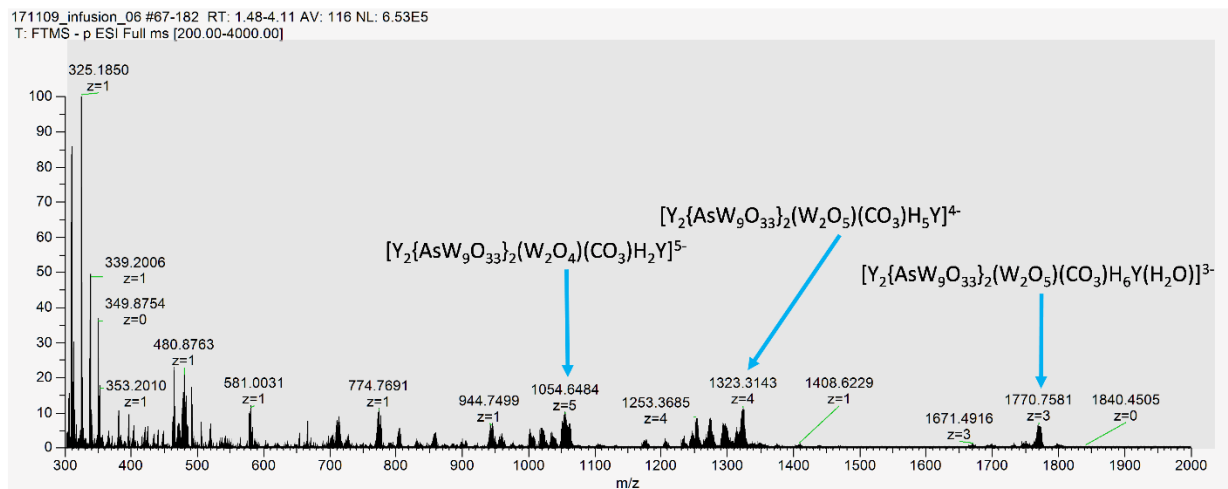
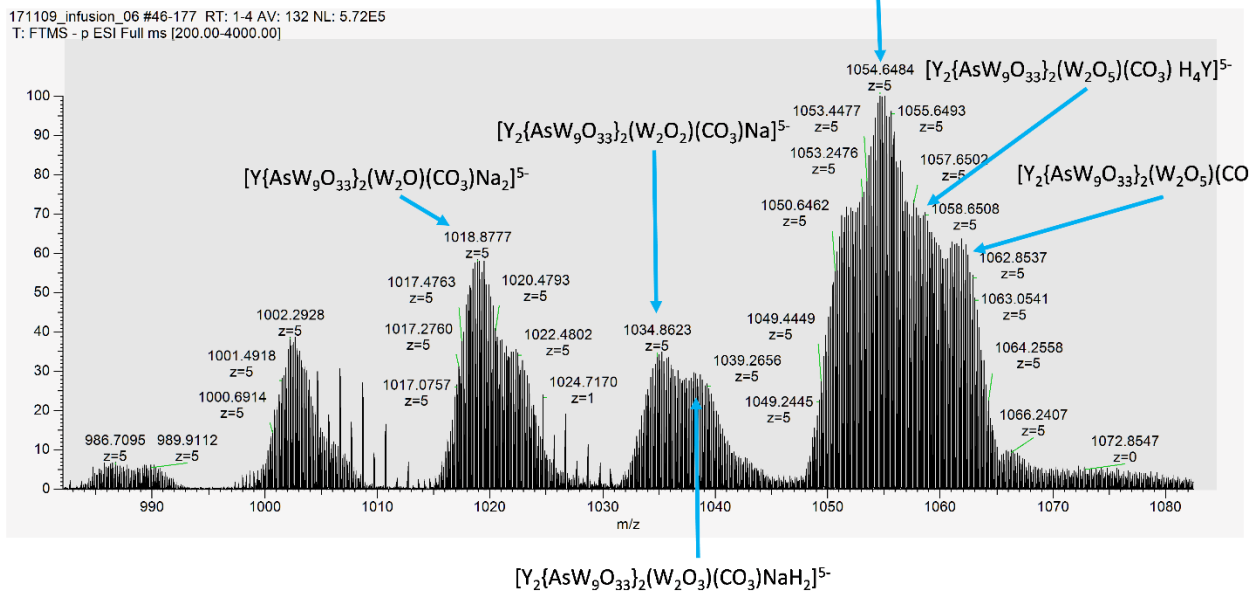


Figure S4. The thermogram of compound **2a** and **3a** showing the loss of crystalline water molecules under the nitrogen atmosphere.

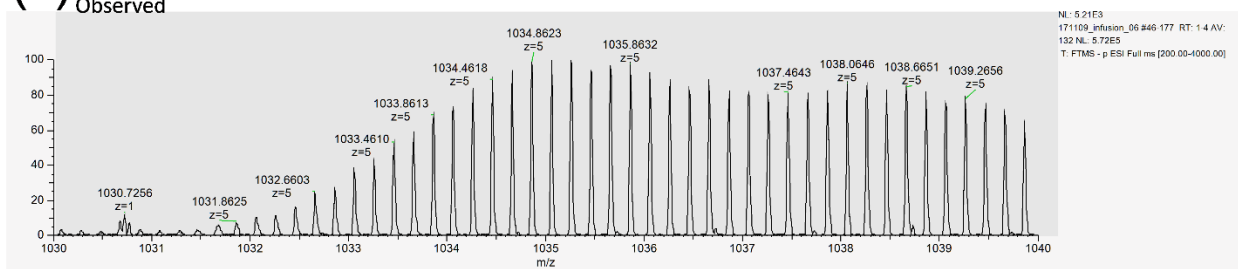
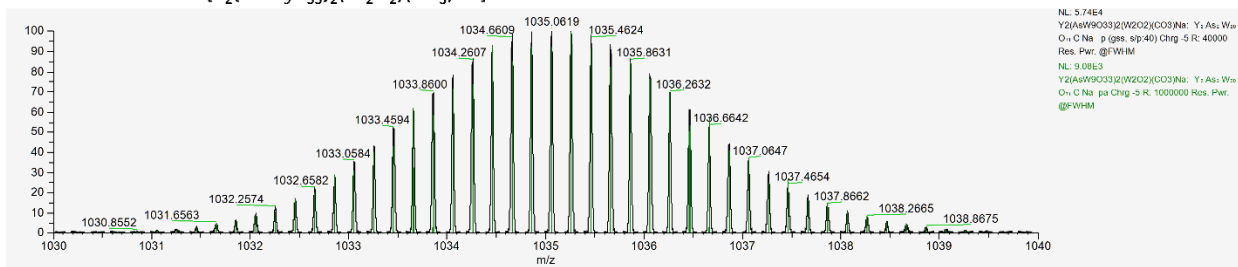
(a)



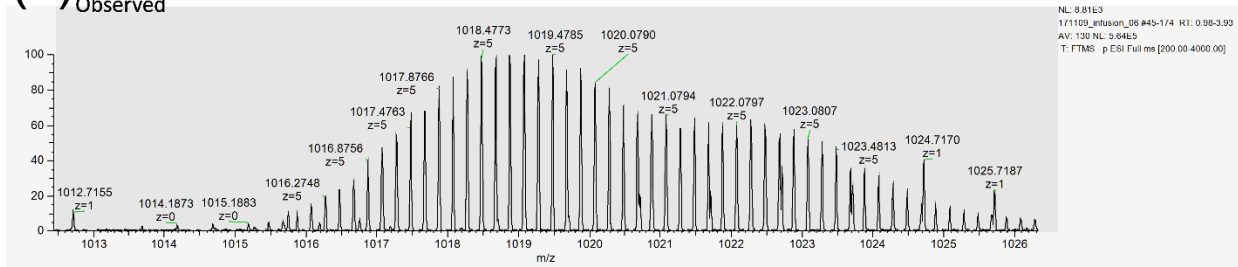
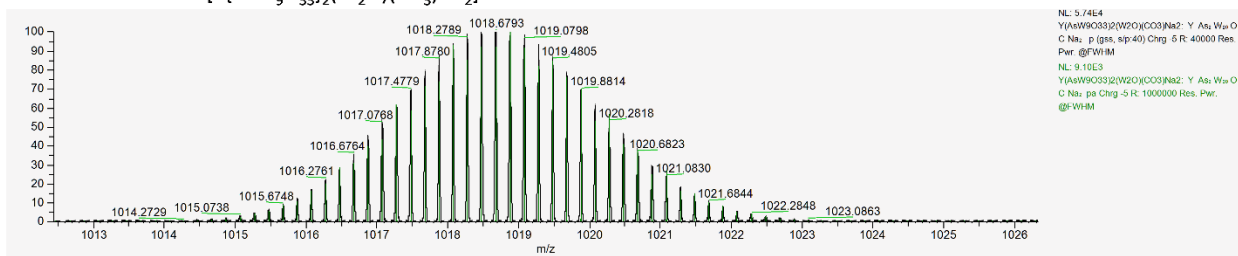
(b)



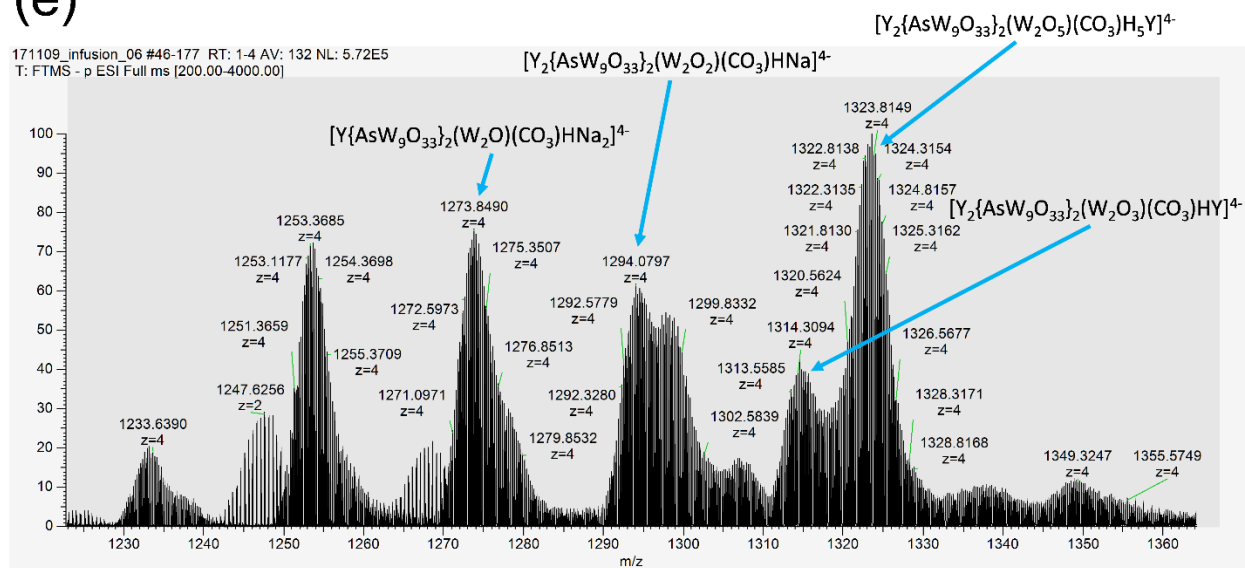
(c) Observed

Simulated for $[Y_2\{AsW_9O_{33}\}_2(W_2O_2)(CO_3)Na]^{5-}$ 

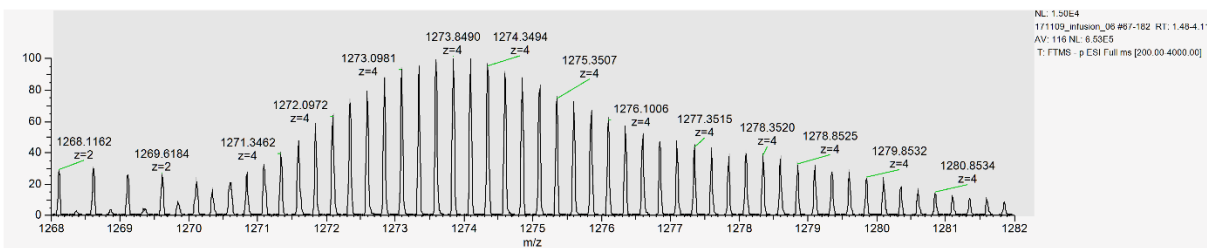
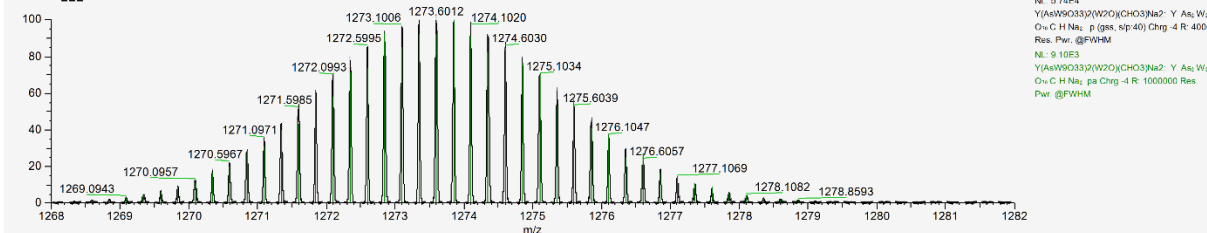
(d) Observed

Simulated for $[Y\{AsW_9O_{33}\}_2(W_2O)(CO_3)Na_2]^{5-}$ 

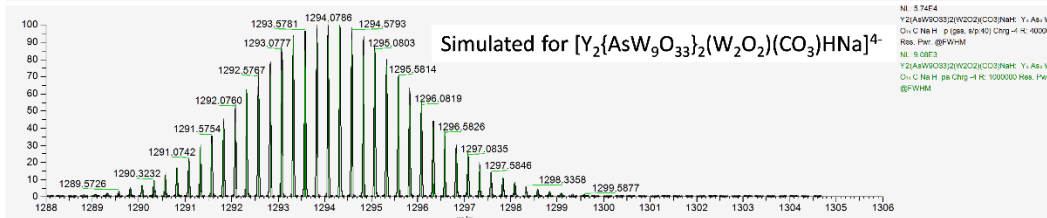
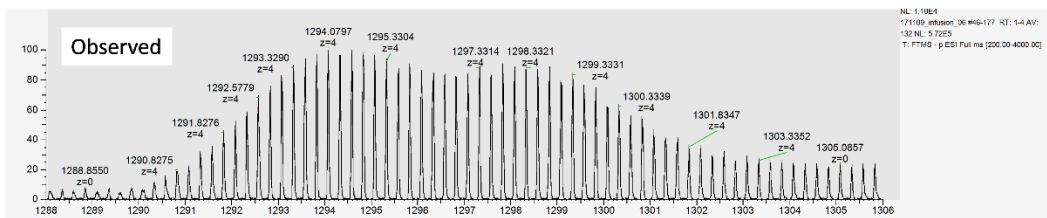
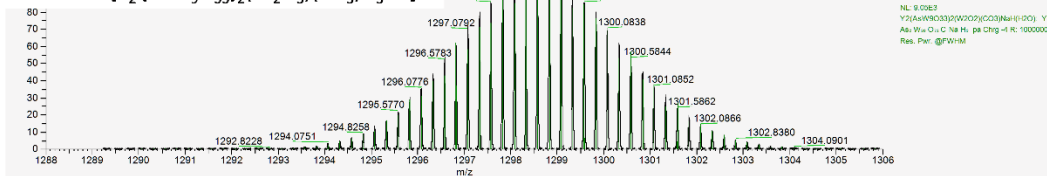
(e)

171109_infusion_06 #46-177 RT: 1-4 AV: 132 NL: 5.72E5
T: FTMS - p ESI Full ms [200.00-4000.00]

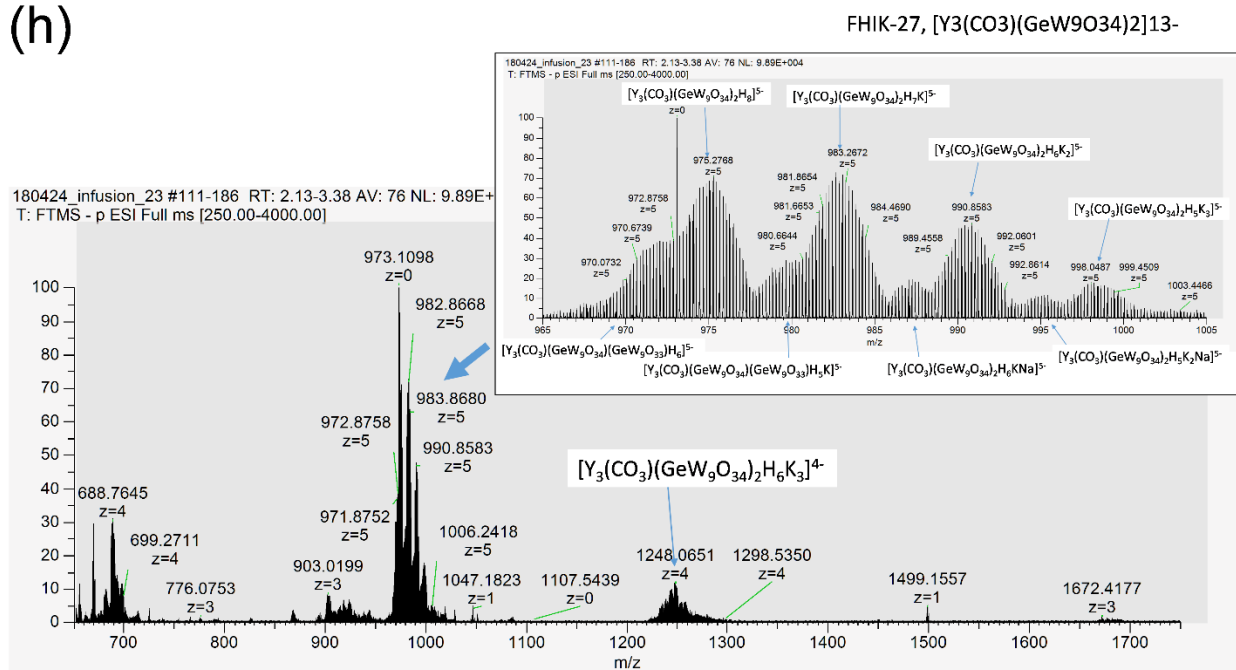
(f) Observed

Simulated for $[Y\{AsW_9O_{33}\}_2(W_2O)(CO_3)HNa_2]^{4-}$ 

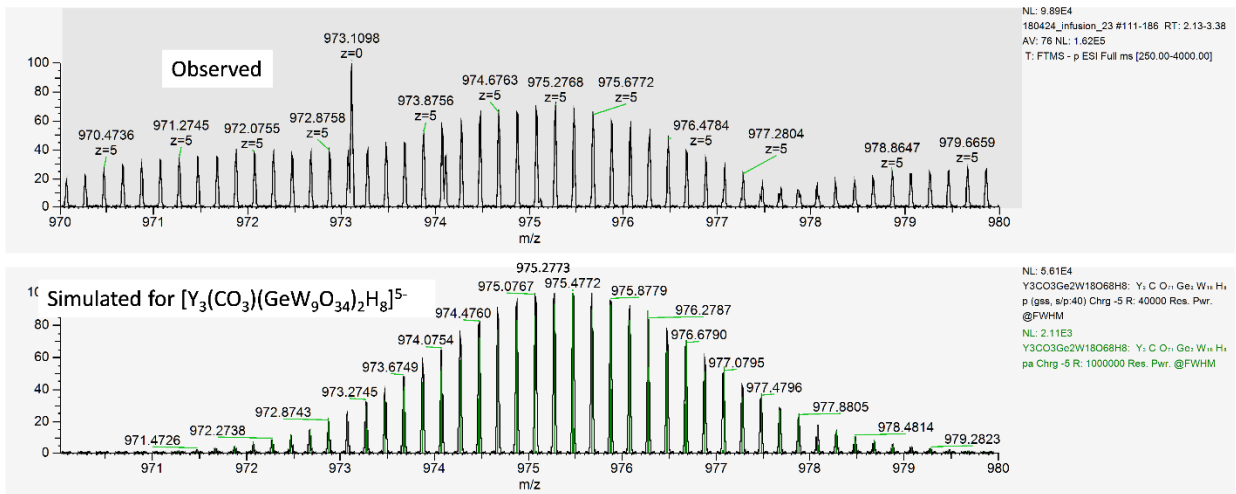
(g)

Simulated for $[Y_2\{AsW_9O_{33}\}_2(W_2O_3)(CO_3)H_3Na]^{4-}$ 

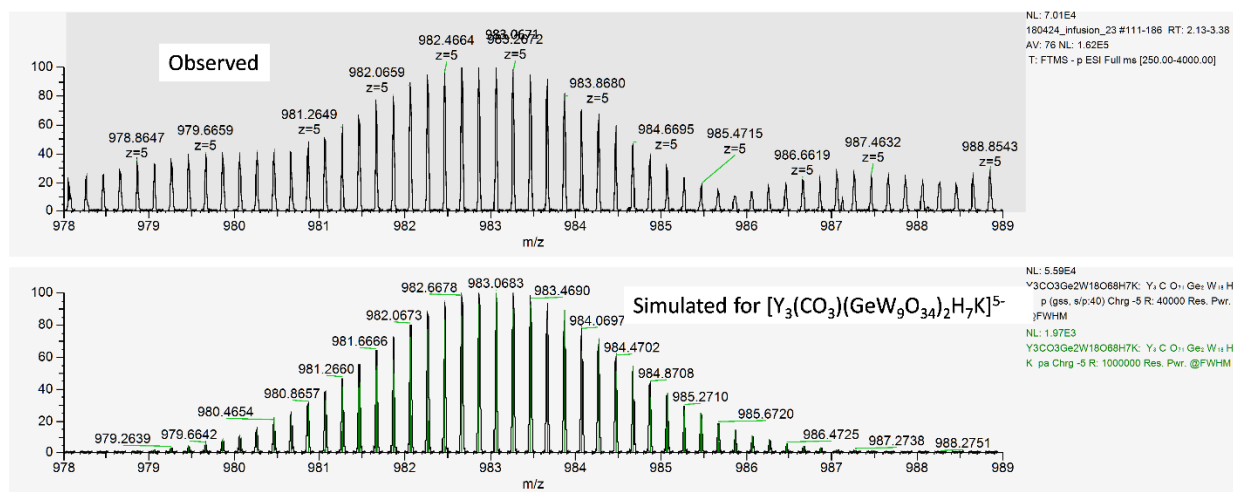
(h)



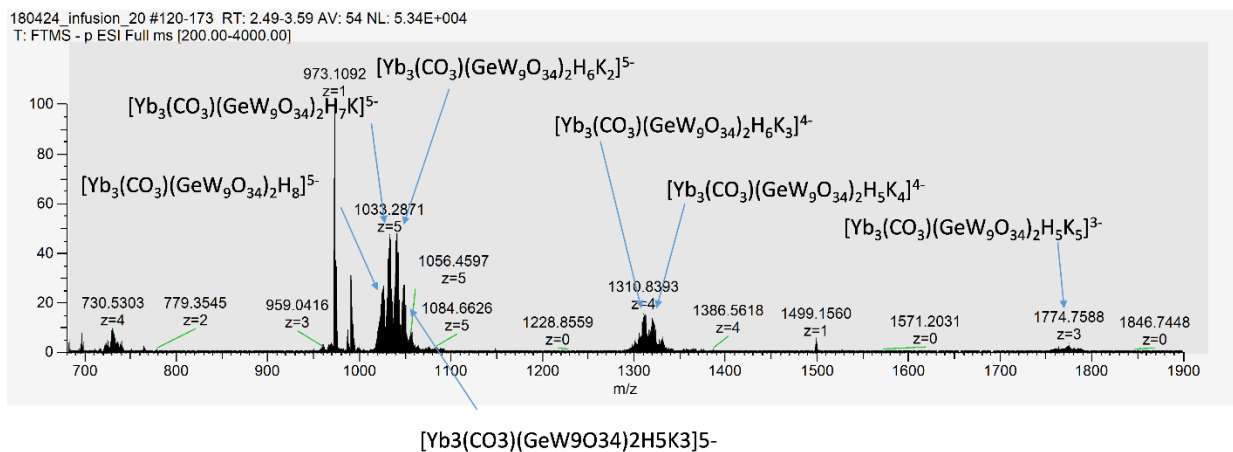
(i)



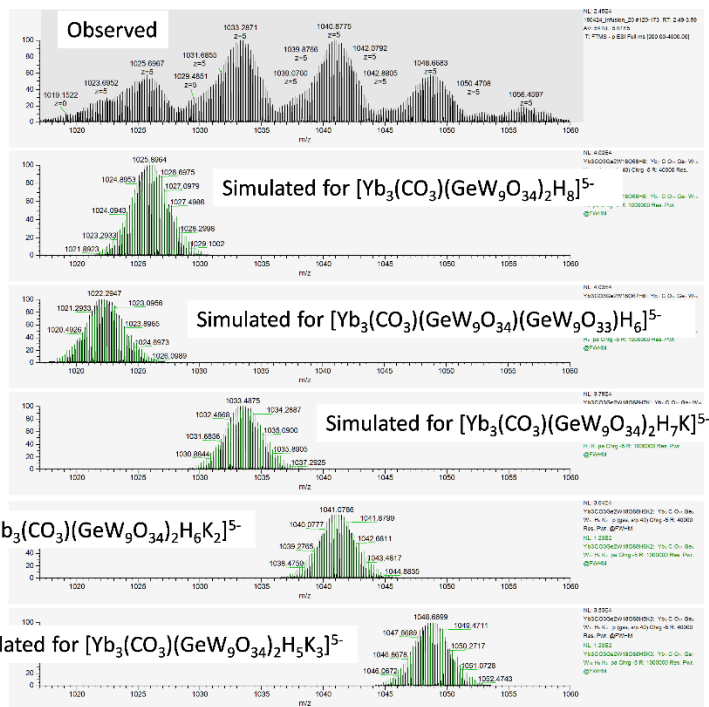
(j)



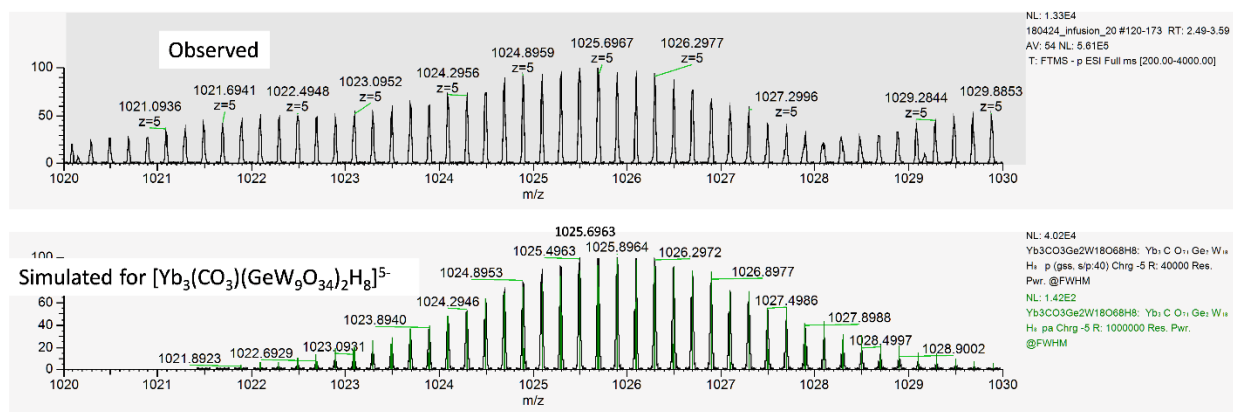
(k)



(l)



(m)



(n)

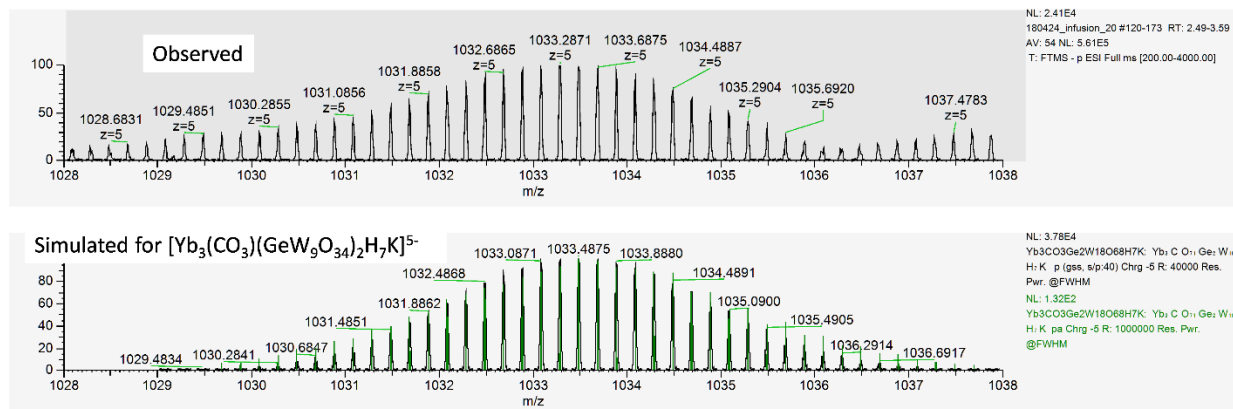


Figure S5. ESI-MS profile of (a) **1a** and (b) to (g) enlarged profile of (a). ESI-MS profile (h) **2**, and (i) and (j) enlarged profile of (h). ESI-MS profile of (k) **3a** and (l) to (n) enlarged profile of (k).