Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Conformational and Entropy Analyses of Extended Molecular Dynamics Simulations of α-, β- and γ-Cyclodextrin and of the β-Cyclodextron/Nabumetone Complex

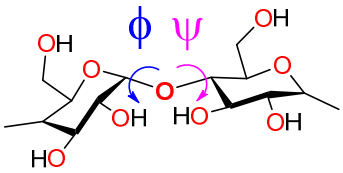
Dimas Suárez* and Natalia Díaz

Dpto. de Química Física y Analítica, Universidad de Oviedo, Oviedo, 33006, Spain.

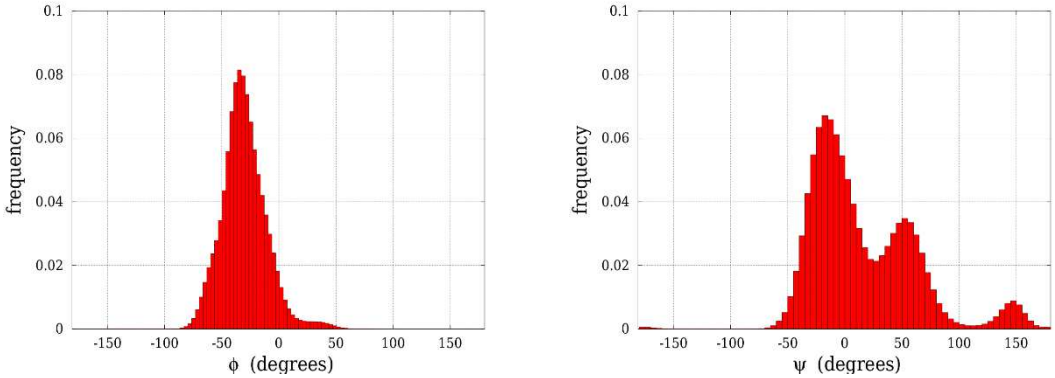
*dimas@uniovi.es

Supporting Information

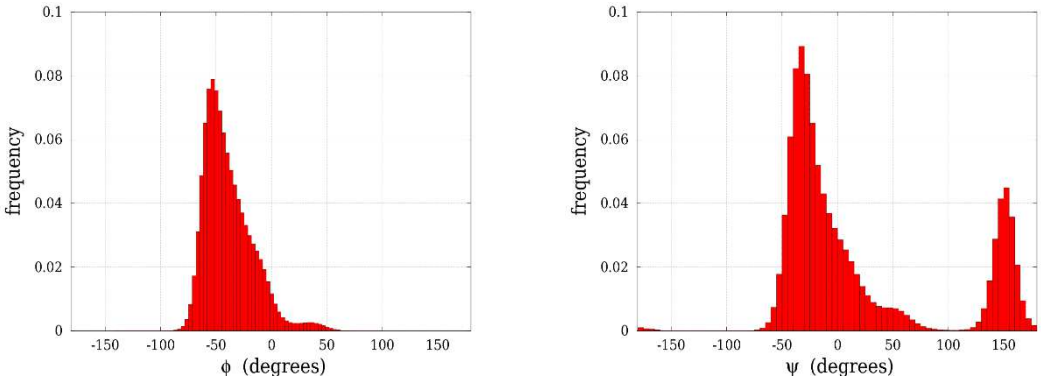
Figure S1. Histograms of the ϕ and ψ dihedral angles computed for all the glucose units during the production phase of the MD simulations of native α-, β-, and γ-CDs.



a) α-CD



b) β-CD



c) γ-CD

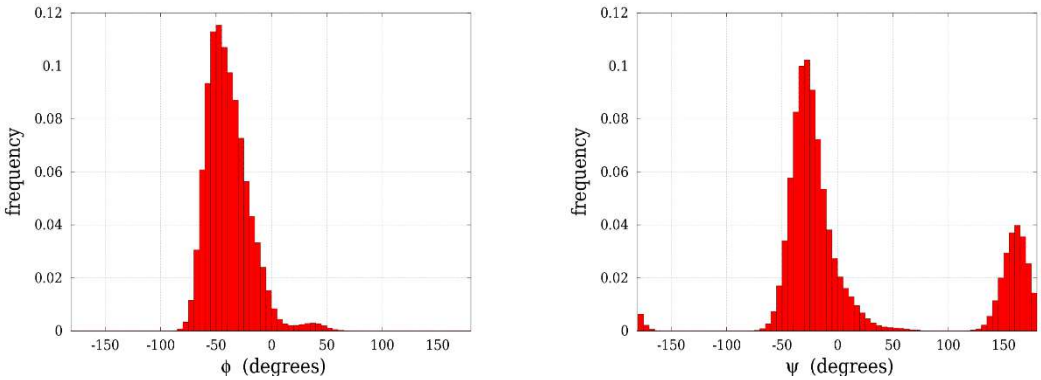


Figure S2. Time evolution of the radius of accessibility of the internal cavity of the CDs during the MD simulations.

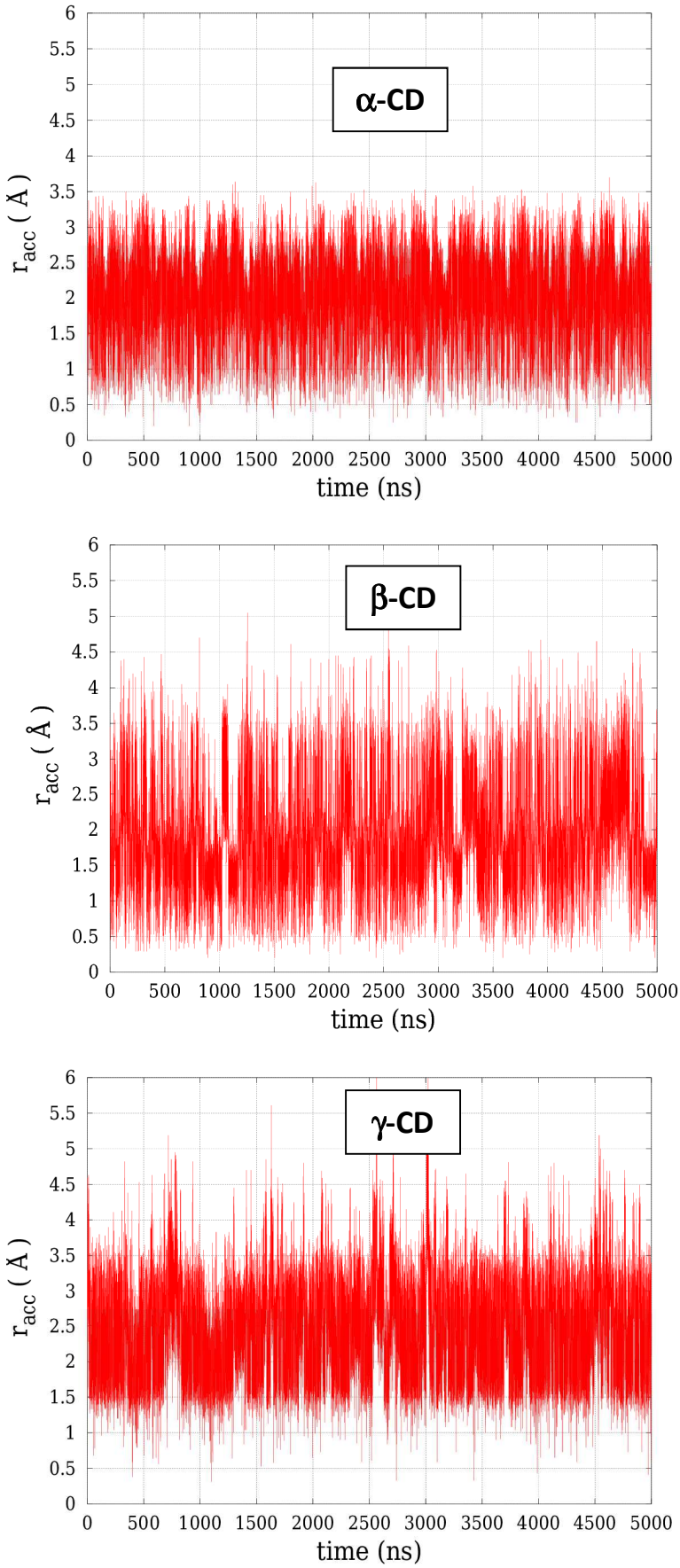


Figure S3. Correlation plots between r_{acc} values and the number of water molecules for CD structures showing inclusion complexes with water molecules.

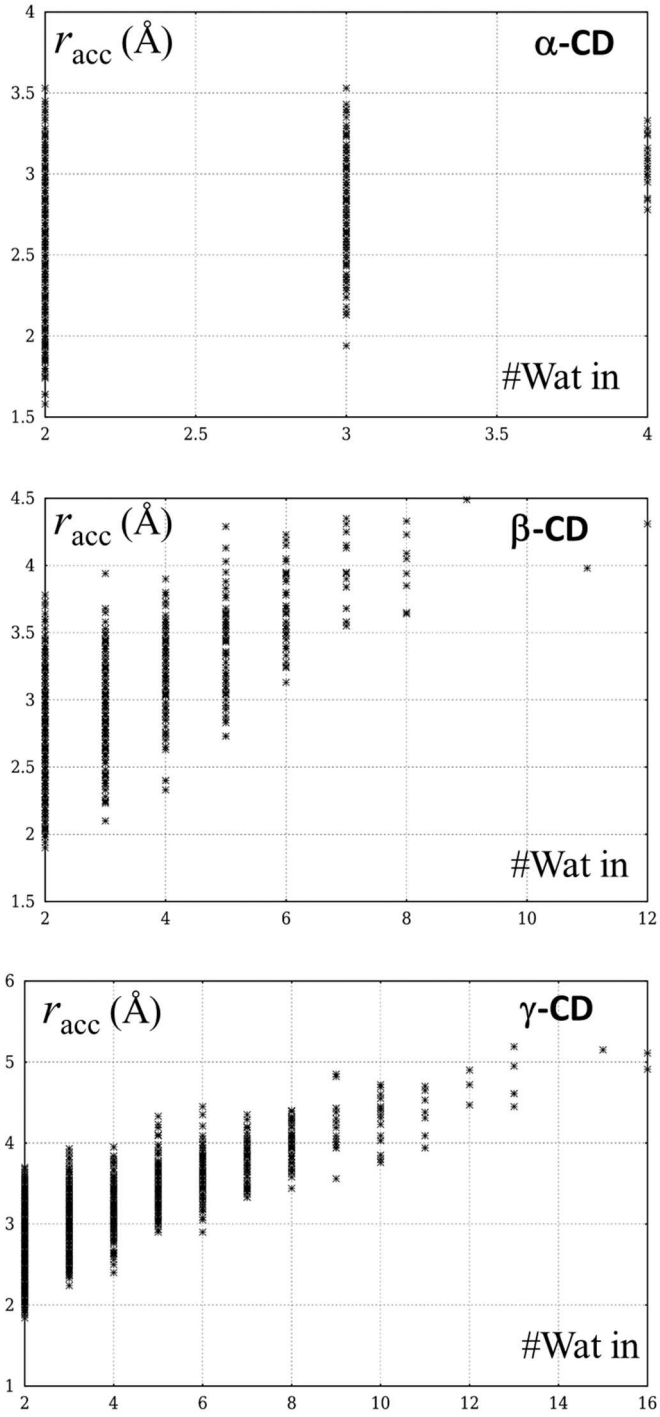
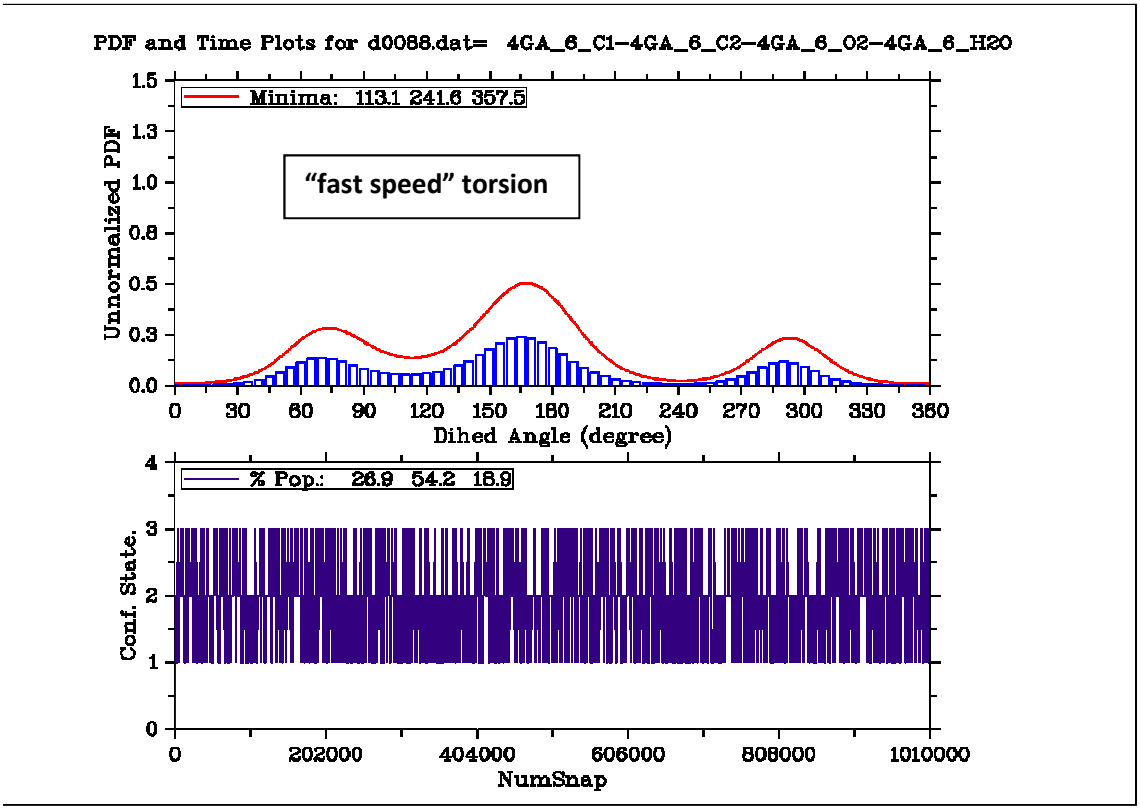


Figure S4. In the upper plot, probability density function for selected dihedral angles of γ-CD **(a-d)**, β-CD **(e)** and α-CD **(f)**,as obtained from a histogram representation and a Von-Mises kernel estimator (red curve). The lower plot shows the time evolution of the associated discrete variables. Note that plots (**d-f**) correspond to conformational motions around the glycosidic C4-O4 bond although the definition of the corresponding dihedral angle does not match that of the ψ angle.

(a)



(b)

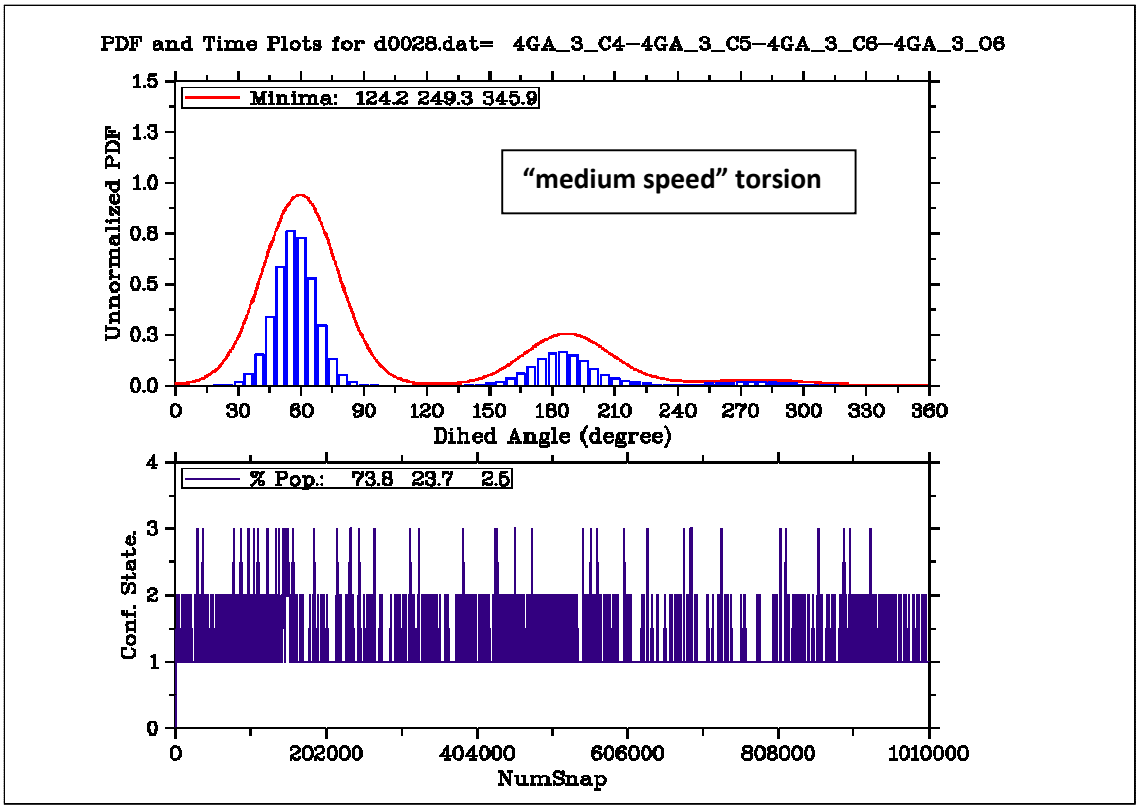
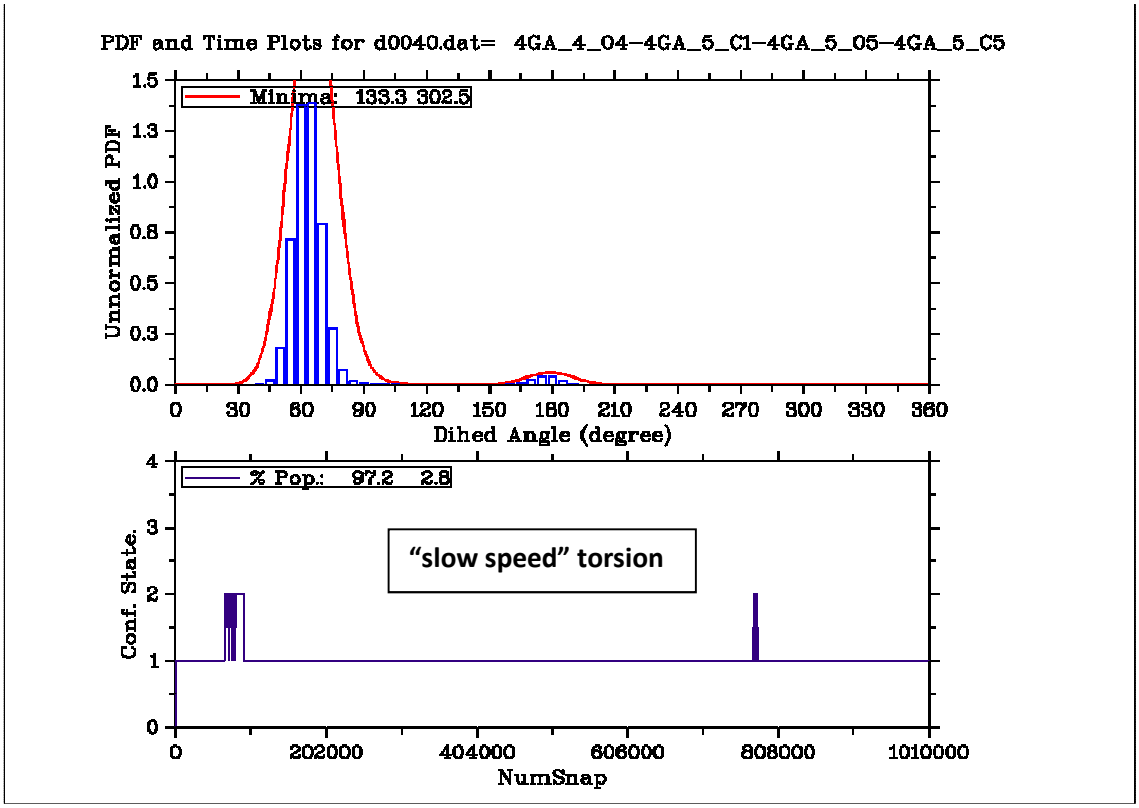


Figure S4 (cont).

(c)



(d)

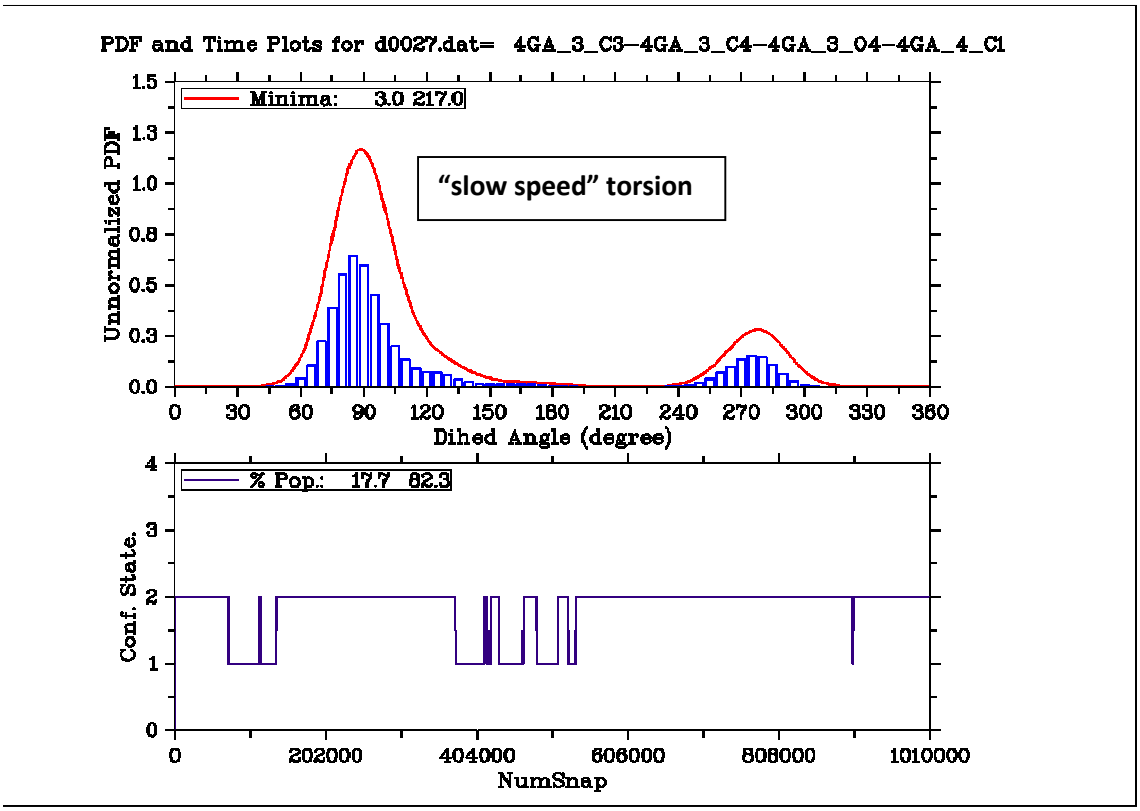
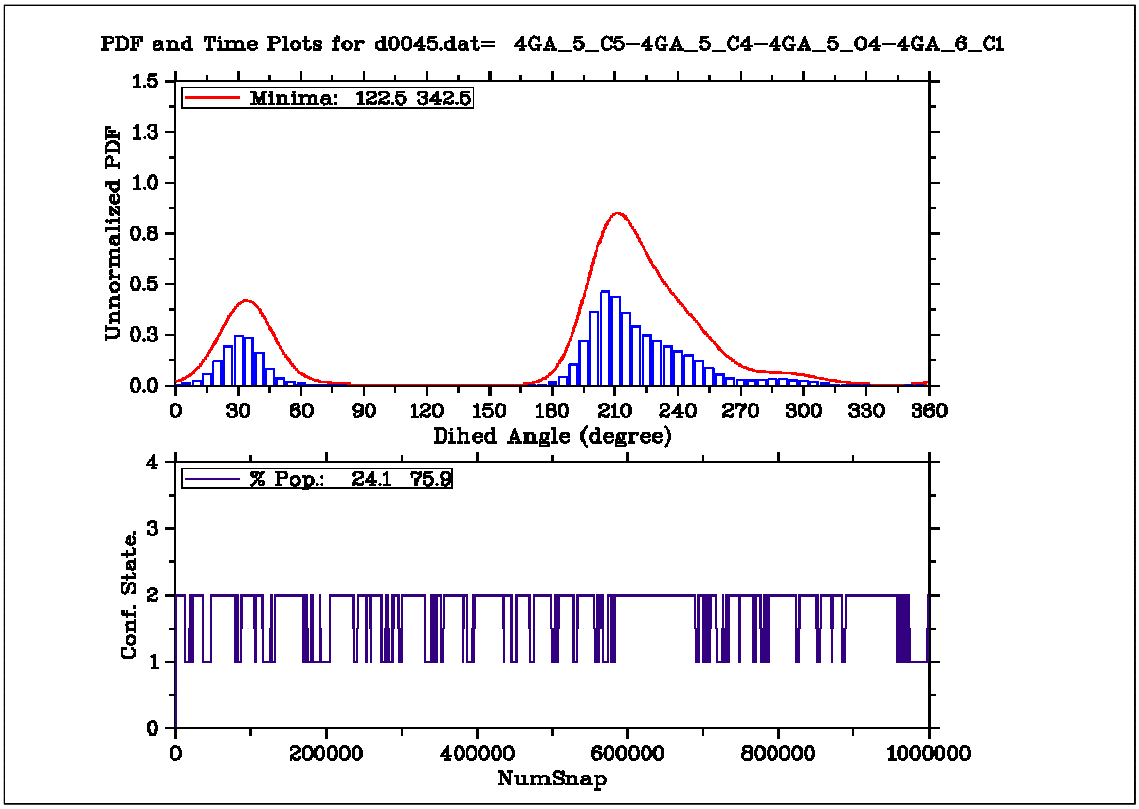
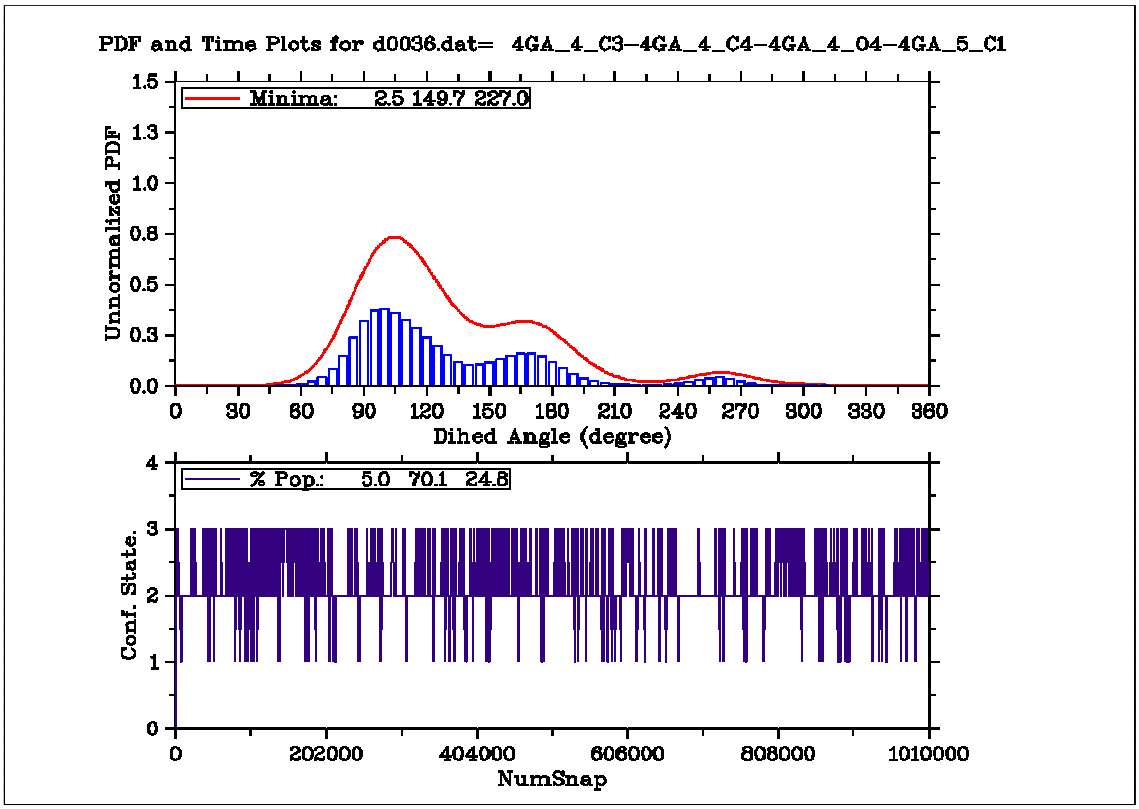


Figure S4 (cont).

(e)



(f)



mol2 file containing the initial geometry of the nabumetone ligand, GAFF atom types and HF/6-31G* RESP charges.

```
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SMALL
rc
@<TRIPOS>ATOM
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      2 C2          5.0270   -0.1780    0.1510 c         1 LIG      0.602829
      3 C3          3.5490    0.0590    0.4040 c3        1 LIG     -0.028607
      4 C4          2.6850   -0.0680   -0.8540 c3        1 LIG     -0.028958
      5 C5          1.2200    0.1810   -0.5700 ca        1 LIG     -0.002054
      6 C6          0.3320   -0.8420   -0.4430 ca        1 LIG     -0.192815
      7 C7         -1.0390   -0.6100   -0.1520 ca        1 LIG      0.089967
      8 C8         -1.9710   -1.6730   -0.0110 ca        1 LIG     -0.266465
      9 C9         -3.2760   -1.4250    0.2680 ca        1 LIG     -0.140046
     10 C10        -3.7290   -0.0910    0.4210 ca        1 LIG      0.243615
     11 O1         -5.0370    0.1330    0.7290 os        1 LIG     -0.356695
     12 C11        -5.9290    0.1040   -0.3570 c3        1 LIG      0.033626
     13 C12        -2.8640    0.9480    0.2960 ca        1 LIG     -0.248428
     14 C13        -1.4950    0.7110    0.0090 ca        1 LIG      0.098450
     15 C14        -0.5580    1.7700   -0.1310 ca        1 LIG     -0.225442
     16 C15         0.7450    1.5130   -0.4100 ca        1 LIG     -0.158629
     17 O2          5.4510   -0.4360   -0.9340 o         1 LIG     -0.539464
     18 H1          6.9630   -0.2610    1.0520 hc        1 LIG      0.064493
     19 H2          5.6490   -0.7850    2.1160 hc        1 LIG      0.064493
     20 H3          5.8720    0.9190    1.7940 hc        1 LIG      0.064493
     21 H4          3.4370    1.0440    0.8530 hc        1 LIG      0.010801
     22 H5          3.2160   -0.6440    1.1640 hc        1 LIG      0.010801
     23 H6          2.8180   -1.0560   -1.2760 hc        1 LIG      0.032317
     24 H7          3.0430    0.6320   -1.6020 hc        1 LIG      0.032317
     25 H8          0.6620   -1.8600   -0.5660 ha        1 LIG      0.144455
     26 H9         -1.6260   -2.6860   -0.1230 ha        1 LIG      0.166423
     27 H10        -3.9800   -2.2280    0.3930 ha        1 LIG      0.142664
     28 H11        -6.9150    0.2890    0.0440 h1        1 LIG      0.059444
     29 H12        -5.9190   -0.8620   -0.8510 h1        1 LIG      0.059444
     30 H13        -5.6820    0.8730   -1.0820 h1        1 LIG      0.059444
     31 H14        -3.2220    1.9530    0.4270 ha        1 LIG      0.153949
     32 H15        -0.8980    2.7850   -0.0180 ha        1 LIG      0.154145
     33 H16         1.4360    2.3300   -0.5220 ha        1 LIG      0.147309
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     3    1   19 1
     4    1   20 1
     5    2    3 1
     6    2   17 2
     7    3    4 1
     8    3   21 1
     9    3   22 1
    10    4    5 1
    11    4   23 1
    12    4   24 1
    13    5    6 ar
    14    5   16 ar
    15    6    7 ar
    16    6   25 1
    17    7    8 ar
    18    7   14 ar
    19    8    9 ar
    20    8   26 1
    21    9   10 ar
    22    9   27 1
    23   10   11 1
    24   10   13 ar
    25   11   12 1
    26   12   28 1
    27   12   29 1
    28   12   30 1
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    30   13   31 1
    31   14   15 ar
    32   15   16 ar
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    34   16   33 1
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