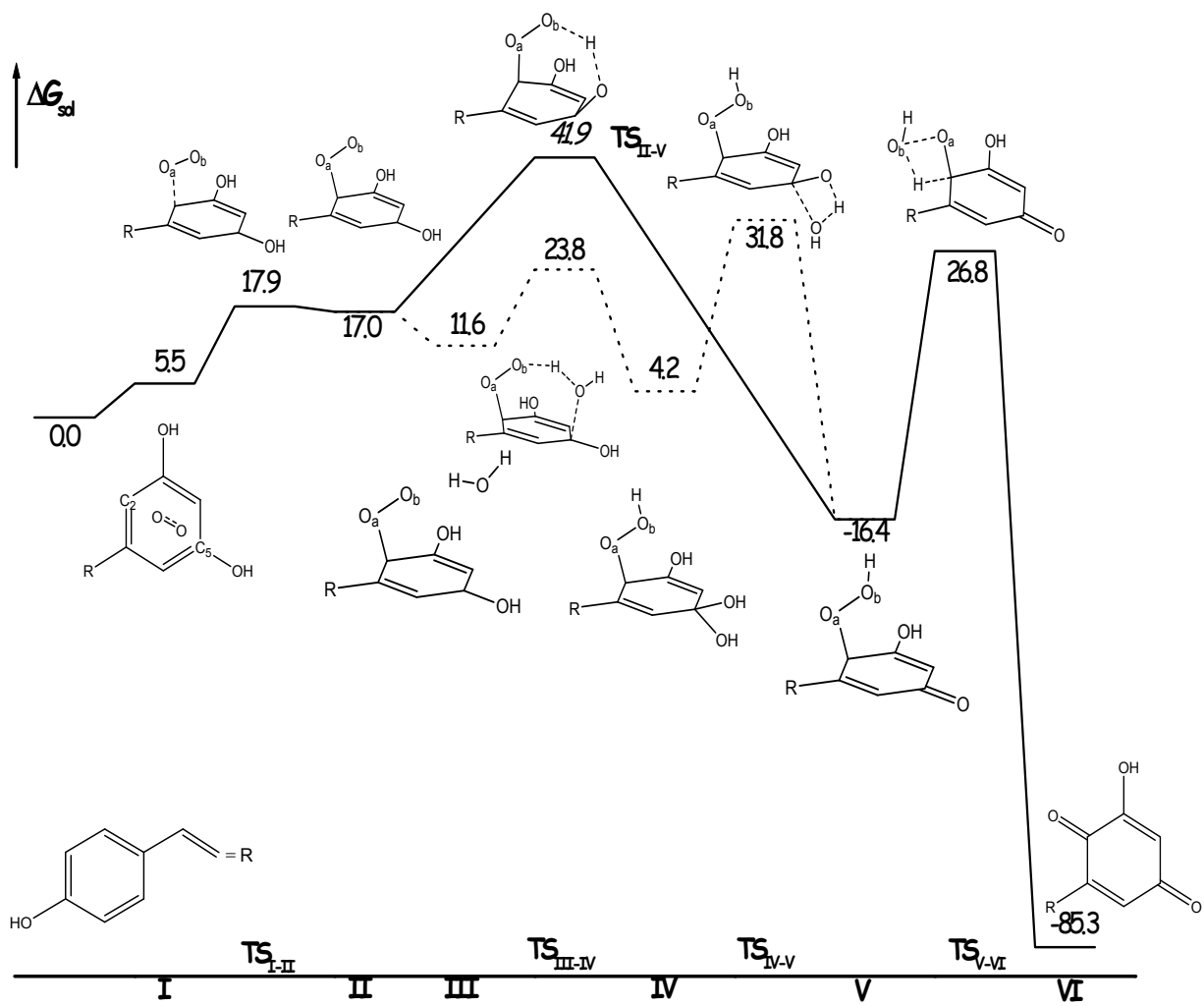


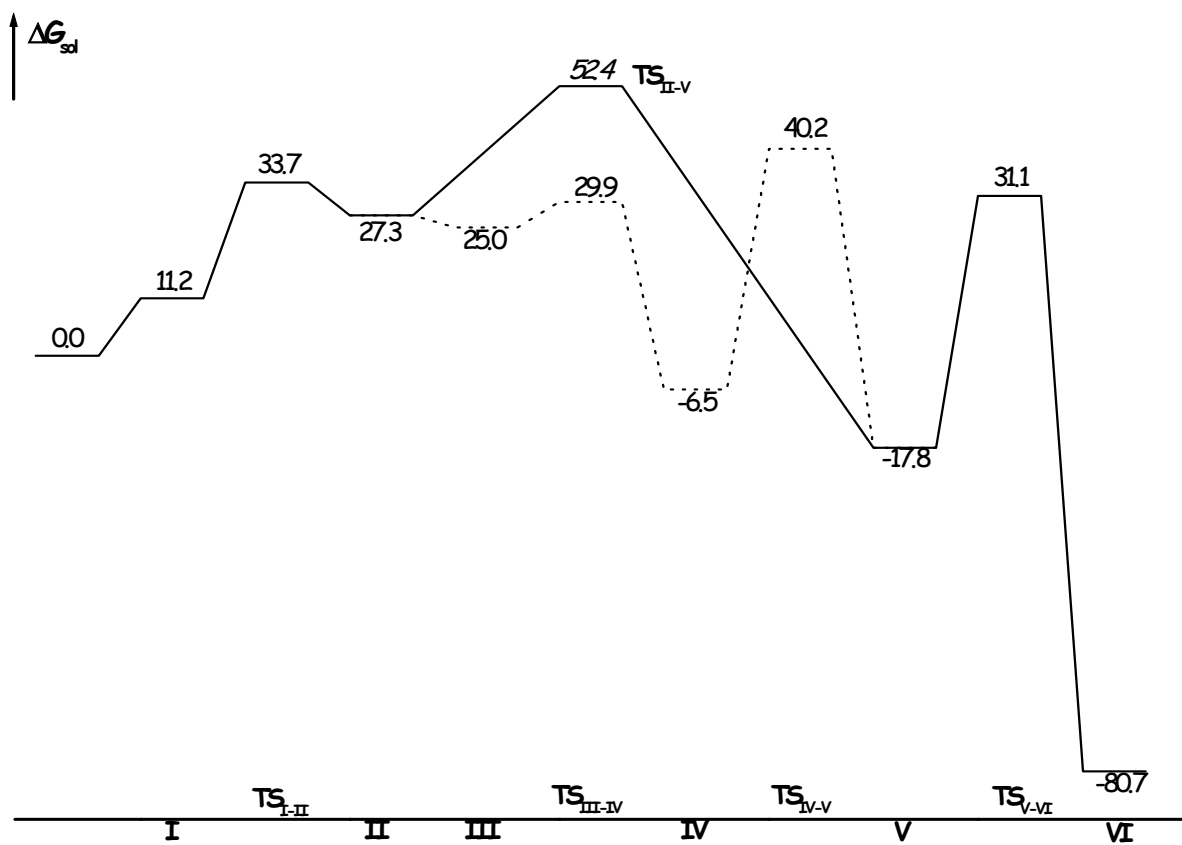
## ***Ab-initio* calculations on $^1\text{O}_2$ quenching mechanism by *trans*-resveratrol**

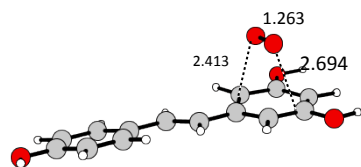
Gloria Mazzone, Marta E. Alberto, Nino Russo and Emilia Sicilia

### **Supplementary Information**

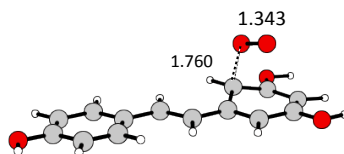
- Energy profile computed for the 1,4-cycloaddition mechanism by employing B3LYP exchange and correlation functional, within the CPCM approach. Total free energies are reported in kcal/mol. -S1-
- Energy profile computed for the 1,4-cycloaddition mechanism performing single point calculation at the SCS-RI-MP2 level, within the COSMO approach. Total free energies are reported in kcal/mol. -S2-
- Fully optimized structures of stationary points intercepted along the 1,4-cycloaddition mechanism by employing B3LYP exchange and correlation functional, within the CPCM approach. -S3-
- Energy profile computed for the  $[\pi2 + \pi2]$  cycloaddition mechanism by employing B3LYP exchange and correlation functional, within the CPCM approach. Total free energies are reported in kcal/mol. -S4-
- Energy profile computed for the  $[\pi2 + \pi2]$  cycloaddition mechanism performing single point calculation at the SCS-RI-MP2 level, within the COSMO approach. Total free energies are reported in kcal/mol. -S5-
- Fully optimized structures of stationary points intercepted along the  $[\pi2 + \pi2]$  cycloaddition mechanism by employing B3LYP exchange and correlation functional, within the CPCM approach. -S6-



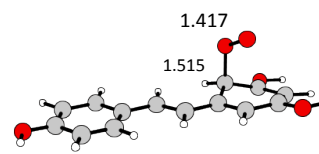




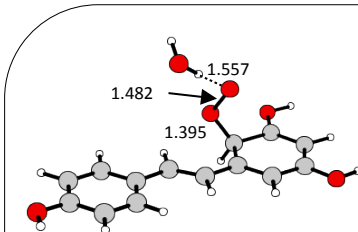
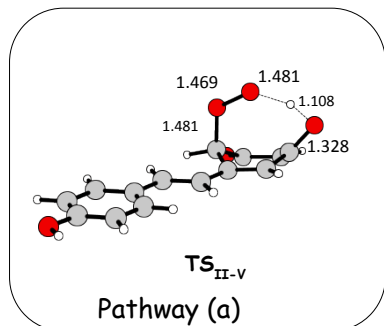
**I**



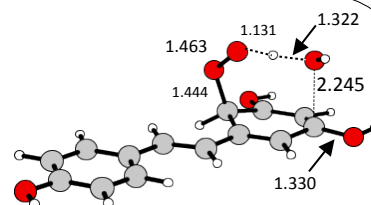
**TS<sub>I-II</sub>**



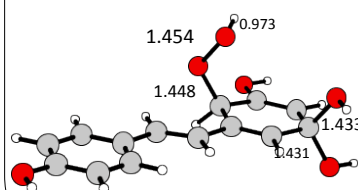
**II**



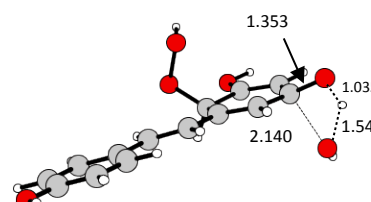
**III**



**TS<sub>III-IV</sub>**

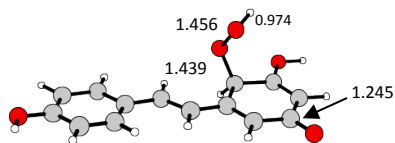


**IV**

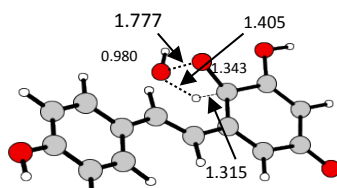


**TS<sub>IV-V</sub>**

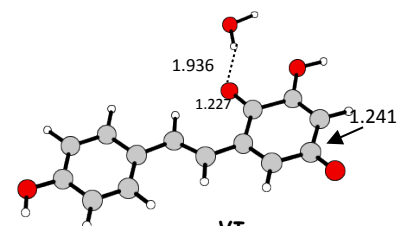
Pathway (b)



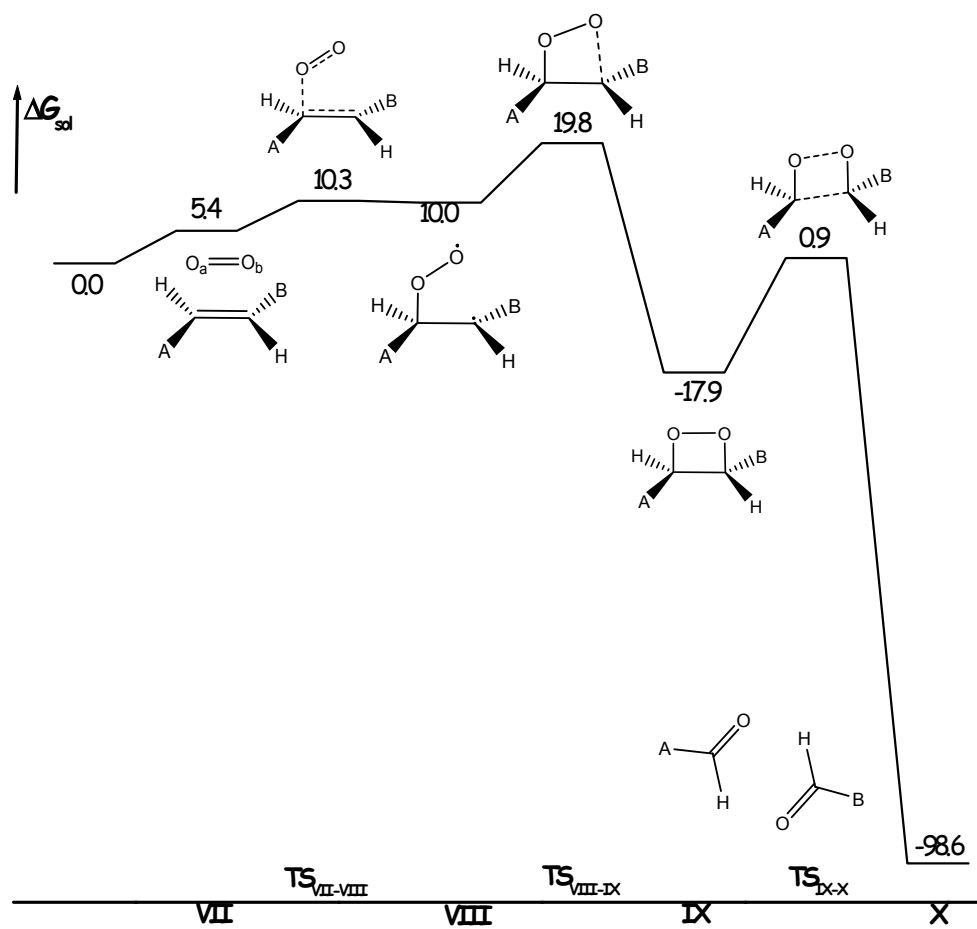
**V**

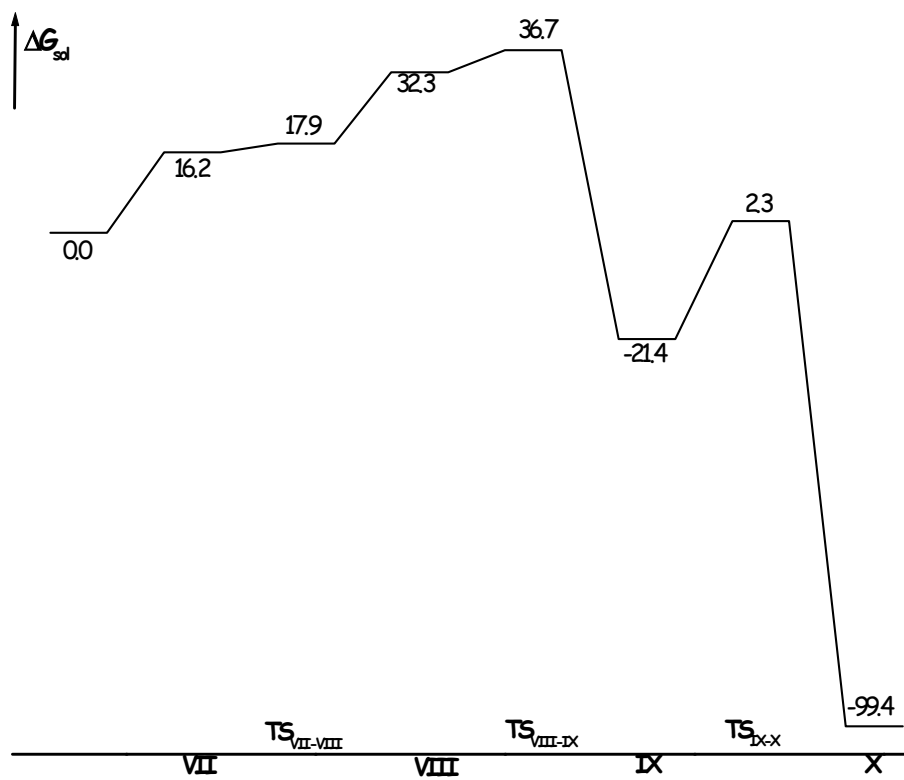


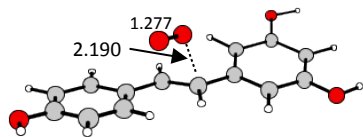
**TS<sub>V-VI</sub>**



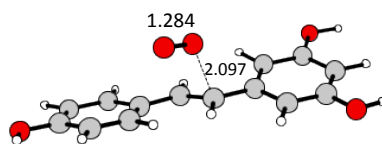
**VI**



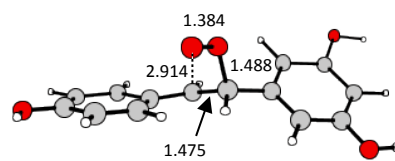




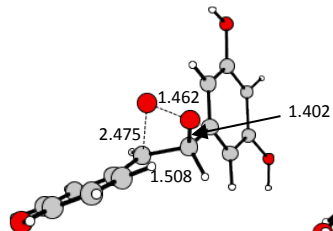
VII



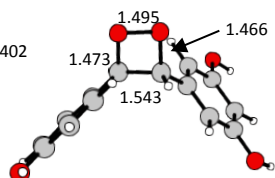
$TS_{VII-VIII}$



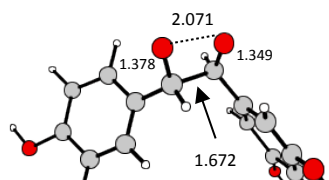
VIII



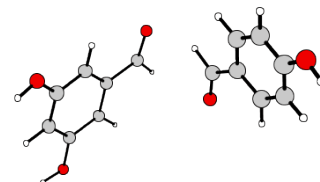
$TS_{VIII-IX}$



IX



$TS_{IX-X}$



X