



**Supplementary Fig. S9.** Time evolution of the center-of-mass distance between the active compound and the primary rim of  $\beta$ -cyclodextrin ( $d[C_{m(\text{primary rim})} - C_{m(\text{active compound})}]$ ) during 200 ns molecular dynamics simulations for each guest/ $\beta$ -CD complex (chavibetol, eugenol, and alpha-pinene) in different conformational forms. Each panel displays results from one of three independent replicas (MD1–MD3). Distances are plotted separately for B/E-forms (red) and M/P-forms (black). The metric reflects the depth and orientation of guest insertion within the  $\beta$ -CD cavity, with smaller distances indicating deeper penetration toward the primary rim.