

Supplementary material Figures

Figure. 1



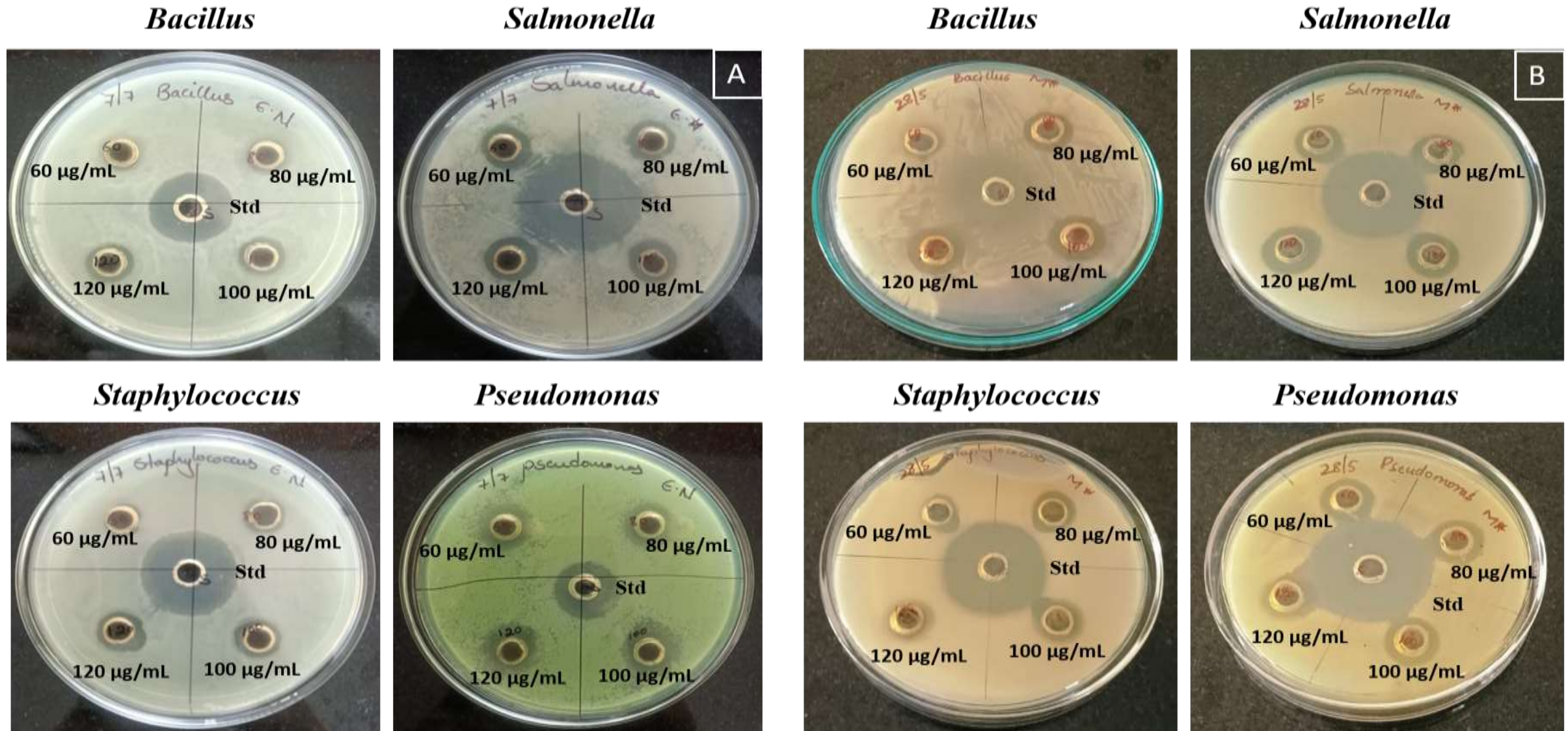
Collected *P. pavonica* thallus



Powdered *P. pavonica*

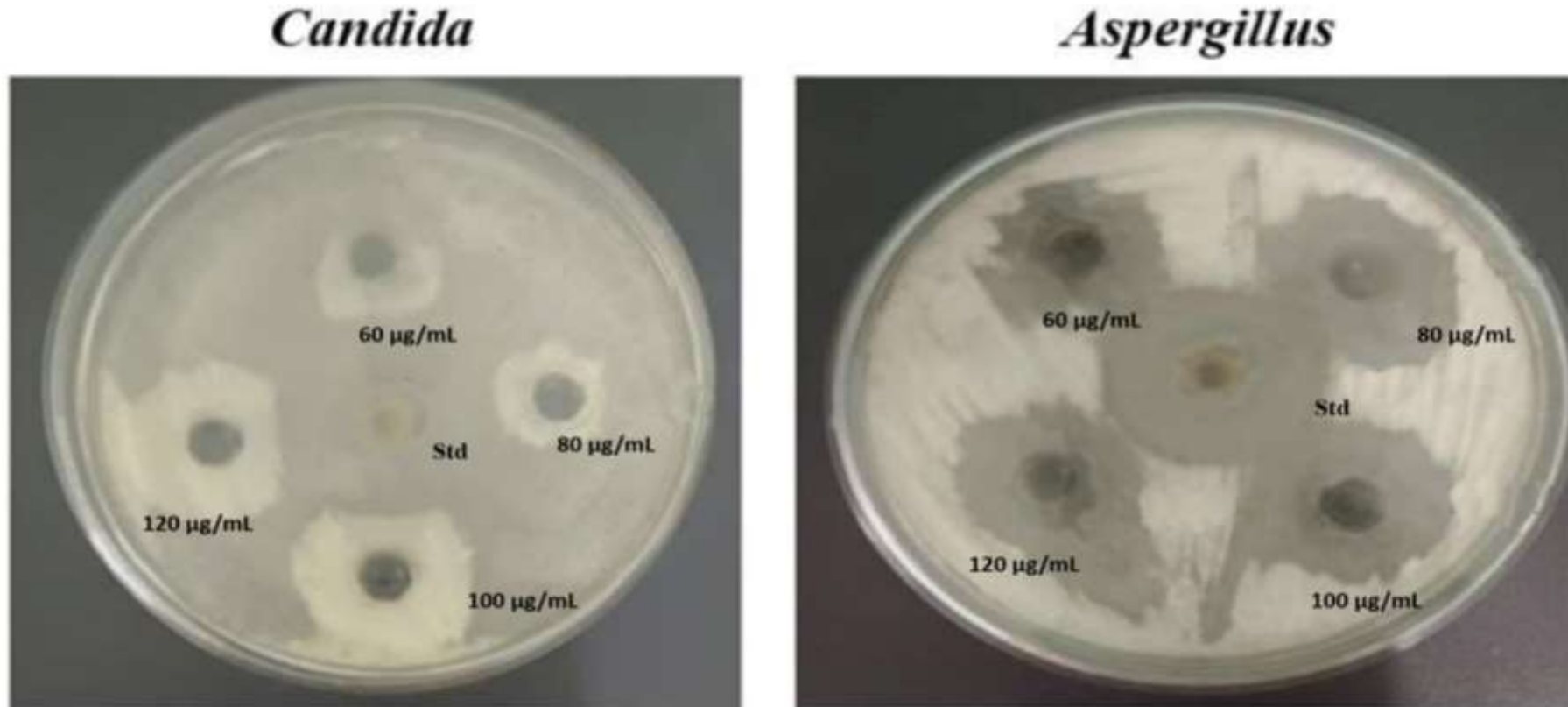
Processing of collected *Padina pavonica* sample

Figure. 2



Antibacterial activities of silver nanoparticles synthesized from ethanolic (A) and methanolic (B) extracts of *Padina pavonica* against gram positive and gram- negative bacteria

Figure. 3



Antifungal activities of silver nanoparticles synthesized from methanolic extracts of *Padina pavonica* against fungal stains.

DTBP vs 2W9H

Molecular docking interaction map of DTBP with protein (2W9H), showing hydrogen bonding, π - π stacking, and hydrophobic interactions that stabilize ligand binding within the active site.

Figure 4

Interactions

- Conventional Hydrogen Bond
- Carbon Hydrogen Bond
- Pi-Pi Stacked

- Alkyl
- Pi-Alkyl
- Covalent bond

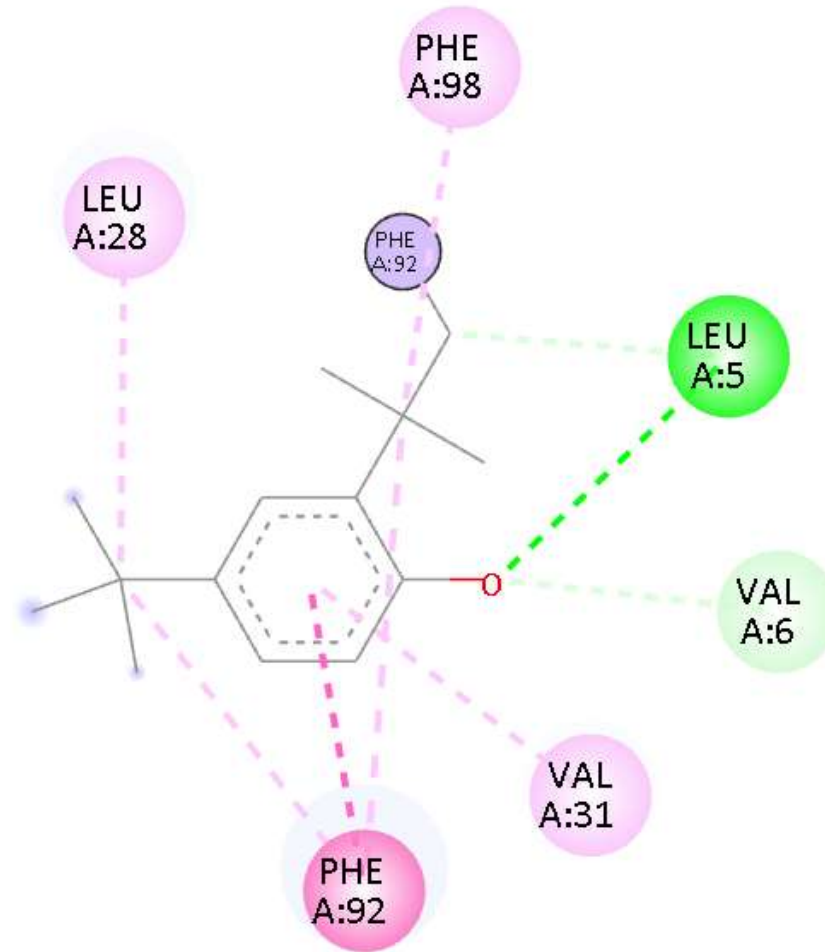


Figure 5

DTBP vs 6UF6

Molecular docking interaction map of DTBP with protein (6UF6), showing stabilizing hydrogen bonding and hydrophobic interactions with surrounding active-site residues.

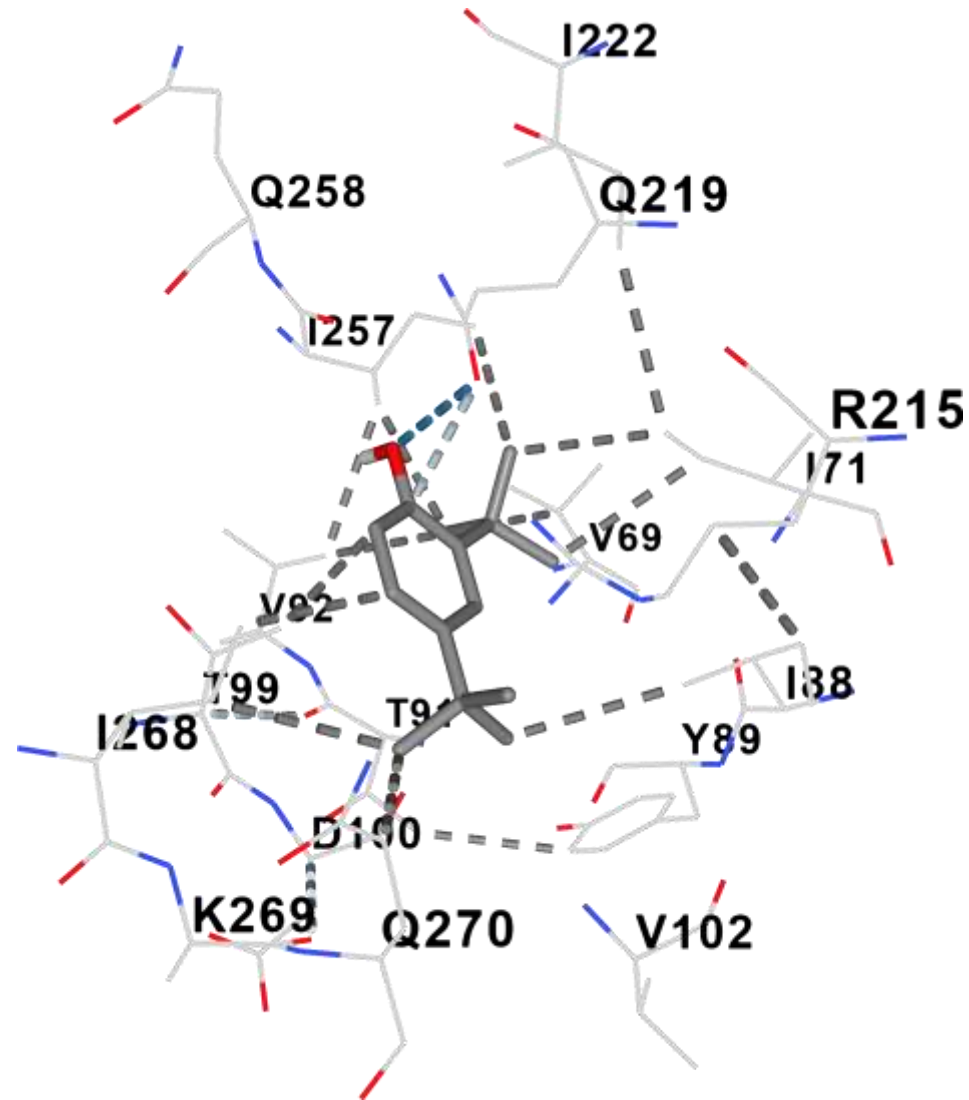


Figure 6

DTBP vs 6SPC

Molecular docking interaction map of DTBP with protein (6SPC), showing hydrogen bonding with Asp b:153 and stabilizing π -alkyl and electrostatic interactions involving Lys b:152 and Tyr b:91 within the binding site.

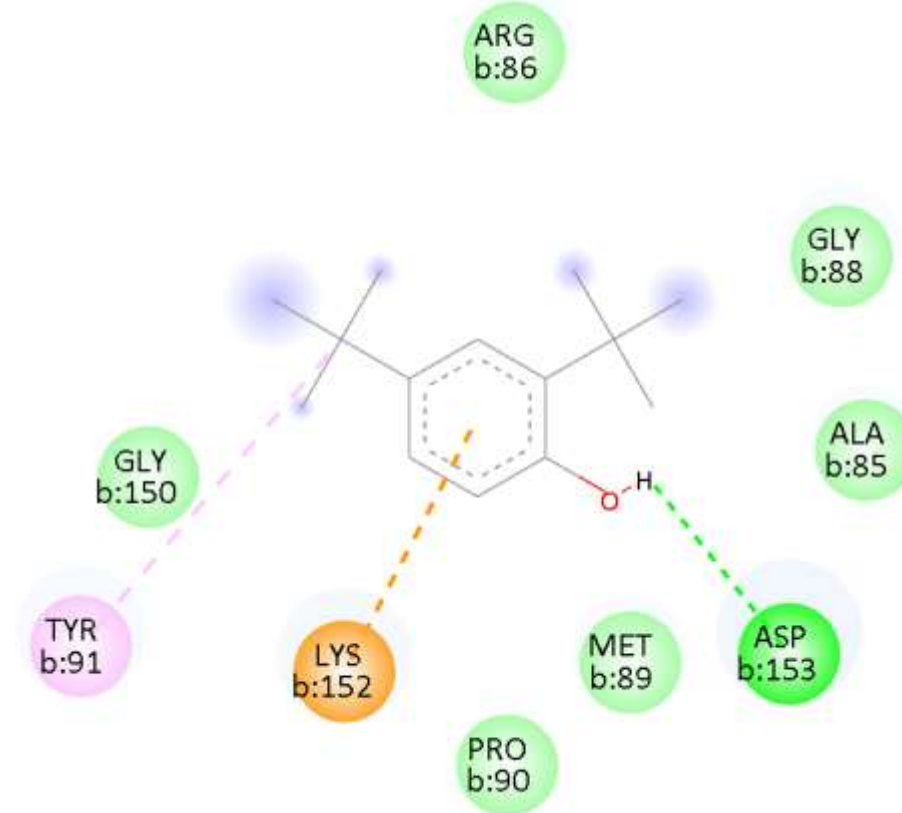
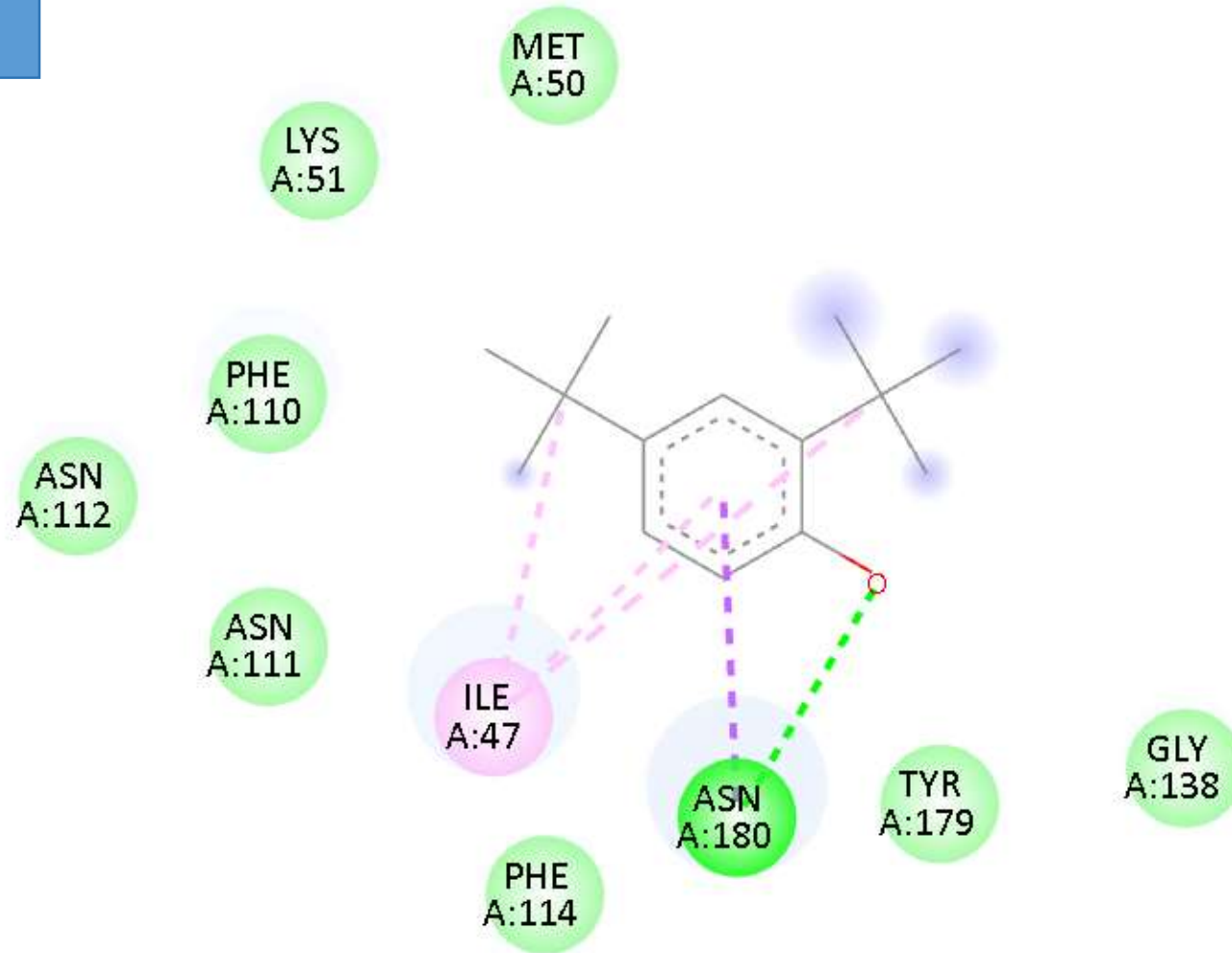


Figure 7

DTBP vs 3FHV

**Molecular docking
interaction map of DTBP
with protein (3FHV),
showing hydrogen bonding
with Asn A:180 and
stabilizing hydrophobic
and aromatic interactions
within the active site.**



Chalcone vs 1NMT

Chalcone vs 1NMT

