

Poster Presentation

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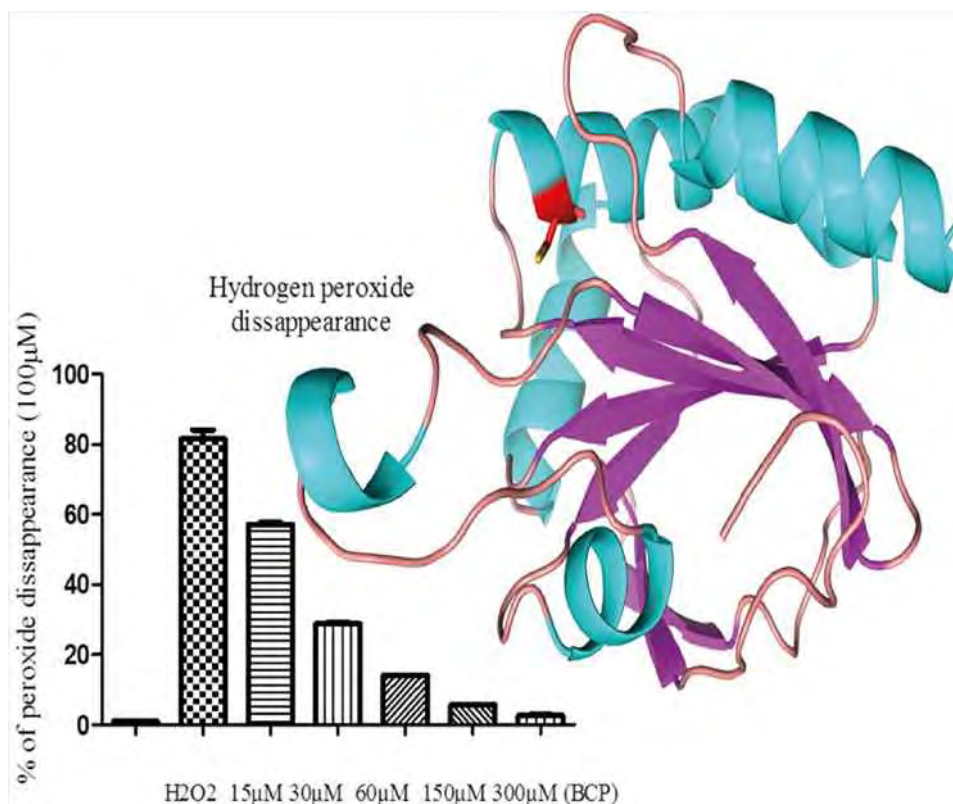
Structural & biochemical study of peroxiredoxin from *Candidatus liberibacter asiaticus*

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Candidatus Liberibacter asiaticus is a fastidious prokaryotic α -proteobacterium that has not been cultured as yet. It is the causative agent of Citrus Huanglongbing (HLB) is a disease that infects citrus plants causing huge losses to the citrus industry. The plants employ a variety of defense mechanisms to combat the pathogen attack which mainly involves the formation of reactive oxygen species (ROS) mainly hydrogen peroxide, peroxynitrite and organic hydroperoxides. The microbe on the other hand has antioxidant proteins that counter the reactive oxygen species. Peroxiredoxin (Prx) which is known to play a crucial role in peroxide detoxification is a super family of one of such antioxidant proteins. In this work, we have determined the crystal structure of Bacterioferritin Comigratory Protein (BCP) that belongs to 1-Cys Prx enzyme having peroxidatic/sulfenic acid cysteine (C-47) but lacks the resolving cysteine. Furthermore, we are investigating structural aspects to gain insight into the binding of different peroxide substrates at the active site. Site directed mutagenesis has been done to introduce the non-conserved resolving cysteine to study its effect on peroxidase activity in both wild type and mutant form. Biochemically, both BCP 1-cys and BCP 2-cys have shown peroxidase activity. DNA protection activity against oxidative damage and cell-line based assays has implicated its protective role towards the hypoxic condition of cells. Hence, the protein becomes a lucrative target for ligands which might be potential antimicrobials.

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