

# Study the effect of $\alpha$ toxin B1 on the liver enzymes in the presence of camphor

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## ABSTRACT

$\alpha$  toxin B<sub>1</sub> is a common contaminant in a variety of foods including peanuts, cottonseed meal, corn, and other grains as well as animal feeds.  $\alpha$  toxin B<sub>1</sub> is considered the most toxic  $\alpha$  toxin and it is highly implicated in hepatocellular carcinoma (HCC) in humans. Alanin aminotransferase (ALT) and aspartate aminotransferase (AST) are the most important enzymes in group of trans-aminases. They are commonly measured clinically as biomarkers for liver health. So far scientists have done many researches about the various effects of camphor on these liver enzymes. They found that camphor can stop the effect of  $\alpha$  toxin B1 and acts as a herbal fungi toxicant.  $\alpha$  toxin B1 is a compound that causes liver injuries, but camphor protects the liver by repressing the effects of  $\alpha$  toxin B1.

In this work we studied the effect of  $\alpha$  toxin B1 on ALT and AST enzymes in the presence of camphor. The crystal structure of ALT (PDB entry 3IHJ) and AST (1IVR) were obtained from the Protein Data Bank (<http://www.rcsb.org/pdb>). Molecular docking technique was performed to investigate the probable interactions. B3lyp/6-31g method was used to determine docking data such as binding energy ( $K_b$ ) and inhibition constant ( $K_i$ ) values. Molecular docking studies confirms the interaction between camphor and the enzymes.

**Key words:**  $\alpha$  toxin B1, Liver Enzymes, Camphor, Molecular docking