CRYSTAL STRUCTURE OF ACBP AT 1.6 Å RESOLUTION: THE FIRST STRUCTURE OF *MONILIOPHTHORA PERNICIOSA* THE CAUSAL AGENT OF WITCHES' BROOM

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Moniliophthora perniciosa is the causal agent of witches' broom in the cacao culture and the use of commercial fungicide is not effective. The essential protein acyl-CoA binding protein (ACBP) has been proposed to play a pivotal role in the intracellular trafficking and utilization of long-chain fatty acyl-CoA esters. We cloned, expressed and crystallized this protein. ACBP gene was amplified from cDNA of fructification body of *M. perniciosa*, cloned in the vector pET28a, expressed and purified with affinity chromatography. ACBP was cleaved with thrombin, purified in exclusion chromatography, concentrated at 6 mg/mL and crystallized in 25% PEG 550 MME, 10 mM zinc sulfate plus 100 mM MES pH 6.5. The structure was solved by molecular replacement with the Phaser program using human ACBP as a search model. The model building was performed with WARP/WARP program and refined was carried out with PHENIX and COOT programs. Final model present R_{work} 0.17 and R_{free} 0.21 and good stereochemistry checked by PROCHECK program. ACBP is a conserved protein with about 90 amino acids residues and classified as four helix bundle, however *M. perniciosa* ACBP has 104 amino acid residues and presents a different topology with an additional alpha-helix at the N-terminal region. Analysis of native electrophoresis gel indicates that the apo ACBP is a monomer while other oligomeric states are present when the protein is associated with ligands. Preliminary analysis with dynamic light scattering has shown the native form as monomer and ACBP with bound palmitoyl-CoA as dimer.

Keywords: ACBP, *Moniliophthora perniciosa*, witches' broom and crystal structure.
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