

P019 Spectroscopic studies of the alternative oxidase
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The alternative oxidase is a respiratory chain protein found in plants, fungi and some parasites that still remains physically uncharacterised. Current model of the AOX, predicts that the enzyme is a monotopic integral membrane protein associating with one leaflet of the lipid bilayer. Although it is generally accepted that AOX is a non-haem diiron carboxylate protein in which the metal atoms are ligated by amino acid residues that all reside within a 4-helix bundle there is little biophysical experimental evidence in favour of this notion. We present EPR evidence from parallel mode experiments which reveal signals at approximately $g = 16$ in both purified plant alternative oxidase protein ($g= 16.9$), isolated plant mitochondrial membranes ($g=16.1$), and in the trypanosomal AOX expressed in *E. coli* membranes ($g=16.4$). Of particular importance is the finding that such signals disappear in the presence of inhibitors of the AOX. Such signals are indicative of a dicarboxylate diiron centre at the active site of the enzyme. To our knowledge these data represent the first EPR signals from AOX present in its native environment.