

Bacteriorhodopsin Thermal Stability: Influence of Bound Cations and Lipids on the Intrinsic Protein Fluorescence

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Temperature – induced changes in protein intrinsic fluorescence of native, delipidated and deionized purple membranes are investigated. It is found that the removal of cations most strongly affects the protein and its thermal stability. The denaturation of dei-BR completes at 70 °C, while delipidated and native BR still maintain their native structure at this temperature. Both, the quantum yield and the fluorescence maximum suggest correlation between the Trp-retinal coupling and protein structural stability. The low red shift of the fluorescence maximum caused by increasing of temperature indicates limited unfolding of bacteriorhodopsin upon denaturation.