New and known structural and functional insights in the role of \( \beta \)-carotene and of \( \alpha \)-tocopherol in photosystem II are reviewed. A concept is presented connecting the failure of P680 triplet quenching by \( \beta \)-carotene with the formation of singlet oxygen and its scavenging in the turnover of the D1 protein and by tocopherol in the maintenance of PS II structure and function.

**Key words:** Chlorophyll Triplet, D1 Protein Turnover, Singlet Oxygen