



Fig. 4. Basidiomycete UPO catalyzing a variety of monooxygenation reactions (and others) with advantages over P450s. **A.** UPO oxidation and oxyfunctionalization reactions, at expenses of H₂O₂, include: **a)** two-electron oxidations with O-transfer; **b)** two-electron oxidations with O-transfer and cleavage reaction; **c)** two-electron oxidations with O-transfer to heteroatoms; and **d)** one-electron oxidations. **B.** While intracellular P450s (top) require a source of reducing power (NAD[P]H) and an auxiliary flavin-containing reductase or protein domain (often wasting a significant part of the reducing power in unproductive H₂O₂ formation), secreted UPO just needs a source of H₂O₂ to be activated (being also more robust due to its extracellular nature). Partially adapted from Hofrichter et al. (2015).