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Controlling the selectivity of peroxygenases via pH

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PURPOSE OF THE ABSTRACT
Unspecific peroxygenases from fungal species (UPOs) are well known for their capability to catalyze oxyfunctionalization reactions by using H2O2 as oxidant and have the unique ability to perform a broad range of reactions, including epoxidation, hydroxylation, demethylation, and even oxygenation of non-activated C-H bonds. The first described UPO (AaeUPO) was also reported to present haloperoxidase activity with the halogenation of MCD with a specific activity of 354,3 U mg -1 (1). For this reason, we decided to use the rAaeUPO (PaDa-I variant) for the generation of OBr - and catalyze halohydroxylation reactions.
In this work, we chose styrene as a substrate and our goal is to show that the rAaeUPO can catalyze its halohydroxylation into 2-bromo-1 phenylethanol.

FIGURES

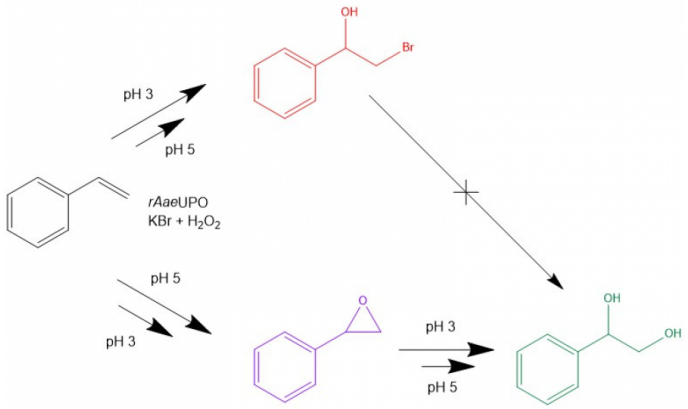

FIGURE 1

Reaction scheme

Fig. 2. Modulating the reaction selectivity via pH

FIGURE 2

KEYWORDS

PaDa-I | Biocatalytic halogenation | Halogenation selectivity

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