

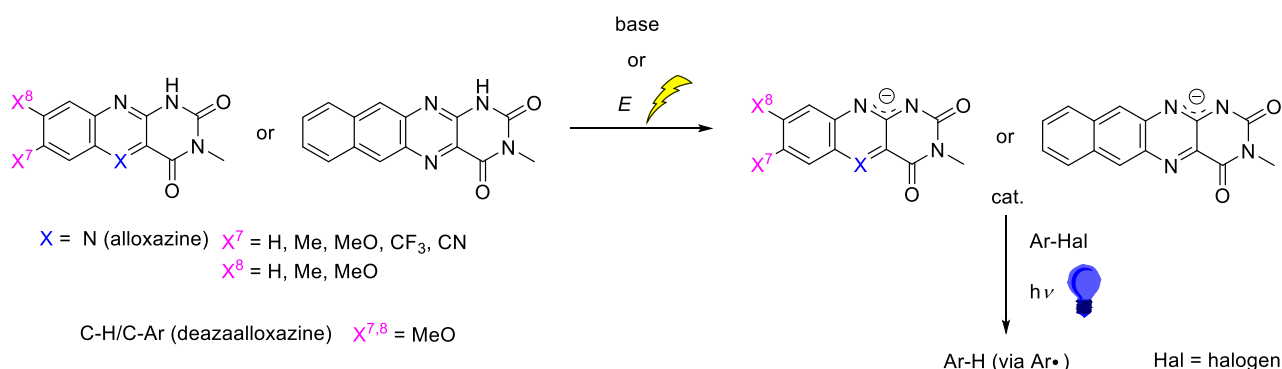
# Anions of alloxazine and deazaalloxazine derivatives and their use in photo- and electrophotocatalysis

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In recent years, there has been growing interest in the use of organic anions in photocatalysis.<sup>1</sup> Anions usually have a shifted absorption towards longer wavelengths. In case where the protonated molecule absorbs in the UV region, the formation of an anion allows the use of visible light in the reaction. Another advantage of anions is that they are more easily oxidized than neutral molecules, which makes them stronger reducing agents. Flavins and flavin derivatives have found many applications as photocatalysts in oxidation and reduction reactions.<sup>2</sup> The flavin derivatives alloxazines and deazaalloxazines are suitable for reduction chemistry due to their negative reduction potentials in the ground state. However, they are usually white or pale yellow compounds which allows their use in photocatalysis only with violet light.

This work is focused on the study of chemical and electrochemical generation of anions of differently substituted alloxazine and deazaalloxazine derivatives and their use as catalysts in photoreductions (Figure 1). Dehalogenation of aryl halides was chosen as a model reaction.



**Figure 1.** Generation of alloxazine and deazaalloxazine anions and their use in dehalogenation of aryl halides.

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1 M. Schmalzbauer, M. Marcon, B. König, *Angew. Chem. Int. Ed.*, **2021**, 60, 6270.

2 E. Svobodová and R. Cibulka, in *Flavin-Based Catalysis*, (eds. R. Cibulka and M. Fraaije), Wiley, **2021**, pp. 265–291.