Faculty of Engineering
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Aerobic Oxidations in Flow with Immobilized Flavin Organocatalysts

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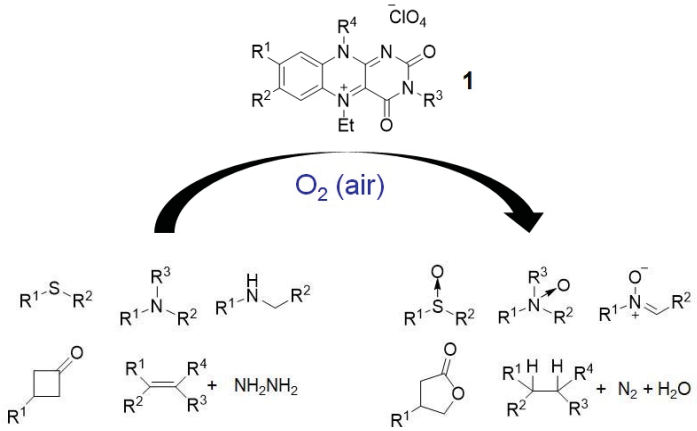

Fig. 1

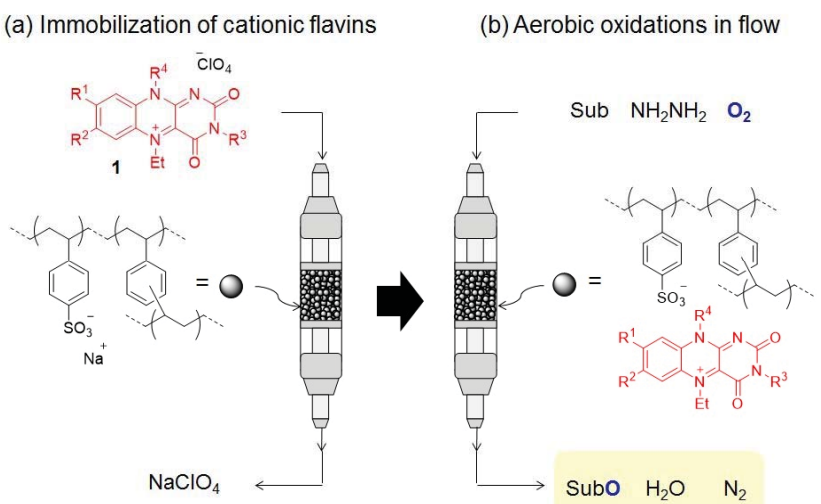

Fig. 2

Content:

Organocatalysts have become valuable tools for synthetic chemistry over the last 15 years, but their industrial application has so far been limited nevertheless. One of the major issues is arguably the difficulty of catalyst separation, recovery and reuse. Immobilizing organocatalysts onto an insoluble support such as a crosslinked polymer is therefore highly emphasized since it allows in principle for facile catalyst recycling as well as the development of a continuous flow system.

This writer previously reported an immobilization method of quaternary ammonium salts onto sulfonated polymer supports for an asymmetric reaction (*Angew. Chem. Int. Ed*. **2008**, *47*, 8232). On one hand, the research group this writer currently belongs to has pioneered aerobic oxidation reactions with cationic flavin organocatalysts **1** (Fig.1). This knowledge prompted us to investigate whether the versatility of the cationic flavin catalysts can be further improved by immobilization on a sulfonated anionic polymer. The development of practical aerobic oxidation reactions in continuous flow with immobilized flavins is currently ongoing in our laboratory (Fig. 2).

Keywords: organocatalyst, aerobic oxidation, immobilized catalyst, flow system

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