**PART ONE: Oxidation of primary alcohols**

To identify the best reaction conditions needed to oxidize primary alcohols to aldehydes, anisyl alcohol was chosen. Experiments were performed in 100 mg scale and reaction monitoring were done using Thin Layer Chromatography and \(^1\)H-NMR Spectroscopy.

**Method Development: Data and Results**

**Background**

Oxidation of primary and secondary alcohols produces aldehydes and ketones for functionalization and application to medicinal chemistry and pharmacology.

**Why Sand? SiO\(_2\) vs. sand**

- Sand is cheaper ($32.00/500 g – Fisher) than silica gel ($698.00/500g).
- Sand is less harmful than silica gel (irritant).
- Sand does not affect separation of mixtures in column chromatography unlike silica gel.
- Sand is not known in organic synthesis unlike silica gel which makes it very attractive to exploit and utilize in various chemistries.

**Reaction Design**

**Current Progress**

Oxidation of alcohols that are relevant in medicinal chemistry and biochemistry – results pending (NMR and percent yield).

**Future Work**

- Creation of small library of aldehydes and ketones for further use (organometallic chemistry).
- Investigating the role of sand towards interaction with another metal at the surface.

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