# OXIDATION OF DIKETONES AND KETOESTERS TO CARBOXYLIC ACIDS USING CERIC AMMONIUM NITRATE (CAN)

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## ABSTRACT

For my final year project, I am interested in studying about oxidation of diketones and ketoesters to carboxylic acids using ceric (IV) ammonium nitrate as the oxidizing agent. I have used different starting materials to produce different carboxylic acids.

This thesis contains five main divisions. Chapter one covers the introduction of this study. It includes the background and problem statement, significance of study and objectives of this study. Chapter two is on the literature review. In this chapter the significance of the ceric ammonium nitrate (CAN) is emphasized. Then, the third chapter covers the methodology of the experiments. In this chapter, how the experiments were carried out were fully explained. The fourth chapter is emphasizes on the results and discussion. All the findings were being discussed in this chapter. The last chapter, which is chapter five, covers the conclusion and recommendation. This chapter generally summarizes the findings of the study and includes recommendations for further study.

For my final project I use CAN to oxidize ketoesters and diketones to carboxylic acids. I decided to use CAN as an oxidizing agents because of its advantages compared to other oxidizing agents.

# CHAPTER 1

# INTRODUCTION

## 1.1 Background and problem statements

### 1.1.1 Background of synthesizing of carboxylic acids

Carboxylic acids are important components of numerous biomolecules and synthetics targets of high pharmaceutical values. The traditional methods for preparing carboxylic acids include oxidation of primary alcohols and aldehydes, reaction of organometallic reagents with carbon dioxide, hydrolysis of acids derivatives and nitriles, oxidative cleavage of alkenes and alkynes, haloform type reactions, and periodic acids cleavage of vicinal diols and diketones.

Although many useful methods have been developed for the preparation of carboxylic acids, the procedures usually require strenuous reaction conditions including high temperatures, acidic or basic media, or the use of toxic reagents. These procedures are often incompatible with many functional groups and sometimes are environmentally unfriendly. Taking these points into account, mild, neutral, efficient, and functional group compatible procedures for the