UNIVERSITI TEKNOLOGI MARA

SIMPLE CONVERSION OF ALDEHYDE (Ar-CHO) TO CARBOXYLIC ACID (Ar-COOH)

AHMAD SALIMIN BIN ZUBIR

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ABSTRACT

A convenient and efficient application of mortar and pestle for the conversion of benzaldehydes to the carboxylic acids. Good yields of products were obtained in short reaction times. This technique was able to oxidize aromatic aldehydes to the corresponding aromatic carboxylic acids with an extreme by moderate yield. The molar yields of benzoic acid from benzaldehyde, p-bromobenzoic acid from p-bromobenzaldehyde, 3-methoxybenzoic acid from 3-methoxybenzaldehyde and 3-chlorobenzoic acid from 3-chlorodehyde were approximately 49%.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Oxidation of aldehydes to carboxylic acids is one of the most common reactions in organic chemistry. Although many oxidizing agents have been used for this purpose, the problem of the efficient conversion of aromatic aldehydes to aromatic carboxylic acids remains still open (Wójtowicz *et al.*, 2001). The most common oxidants such as chromic acid, potassium permanganate in acid, basic and neutral solution, bromine, nitric acid, silver oxide and others are not attractive because they do not fulfill the requirements of modern practical organic synthesis and environmental restrictions. On the other hand, oxidation with environmentally friendly reagents such as dioxygen gives poor results.

1.2 Statement of Problem

The oxidation of aldehydes to carboxylic acids is a fundamental chemical transformation in organic chemistry. Not many reagents or methods are known which can oxidize aldehydes to carboxylic acid under extremely mild and green conditions without considerable loss in the yield of reaction.