

TRENDS IN MEDICINAL AND ENVIRONMENTAL SCIENCE: AN INTRODUCTION

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Published by: Book Rivers

Website: - <https://www.bookrivers.com>

Email: publish@bookrivers.com

1st Print Edition - 2026

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Title: Trends In Medicinal and Environmental Science: An Introduction

Editors: Dr. Iqbal Azad, Dr. Jamal Akhtar Ansari, Prof. Malik Nasibullah, Prof. Abdul Rahman Khan

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ISBN: 978-93-6884-737-3

MRP: 370/-INR

(Printed in India)

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CHAPTER - 6

UTILIZATION OF PEELS OF CITRUS FRUIT FOR EXTRACTING ESSENTIAL OIL USING STEAM DISTILLATION AND SOXHLET EXTRACTION

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Abstract

The widely cultivated citrus plants in the family Rutaceae are orange, lemon, and sweet lime. The production and consumption of these fruits are relatively high worldwide. On the other hand, the peels of these fruits also contribute to environmental pollution, as they are often discarded as waste. The utilization of waste peel is a point of interest. The waste peel can be used to obtain essential oil for various applications. Citrus essential oil is widely used in food, the chemical industry, medical treatment, and other fields because of its pleasant aroma, antioxidant properties, and antimicrobial activity. Citrus fruit peel waste can be an effective feedstock for the isolation of natural bioactive compounds, such as limonene, a high-value-added chemical widely used in food, pharmaceutical, and cosmetic industrial applications. In this project, a cost-effective method is used to obtain essential oil from citrus fruit peels. Extraction is performed using Steam distillation and the Soxhlet apparatus. In this study, the peels of three fruits, namely orange, sweet lime, and lemon, were extracted using Steam distillation and Soxhlet apparatus, and their percentage yield was calculated. From the results, it is concluded that the percentage yield of all three fruit peel samples using Steam distillation follows the order: Orange peel EO > Lemon peel EO > Sweet lime peel EO. From the results, it is concluded that the percentage yield of all three fruit peel samples