STUDIES ON VEGETABLE STABLE AND ESSENTIAL OILS OF SOME SPICES

By
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B. Sc. (Food Science), 1969

THESIS
Submitted in Partial Satisfaction of the
Requirements for the Degree of
MASTER OF SCIENCE
in
FOOD TECHNOLOGY

رسالة

Department of Food Science
Faculty of Agriculture
Ain Shams University

1977

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APPROVAL SHEET

This Thesis Entitled:

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Has been approved by :

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(Committee in Charge)

Date: 16/6/1977

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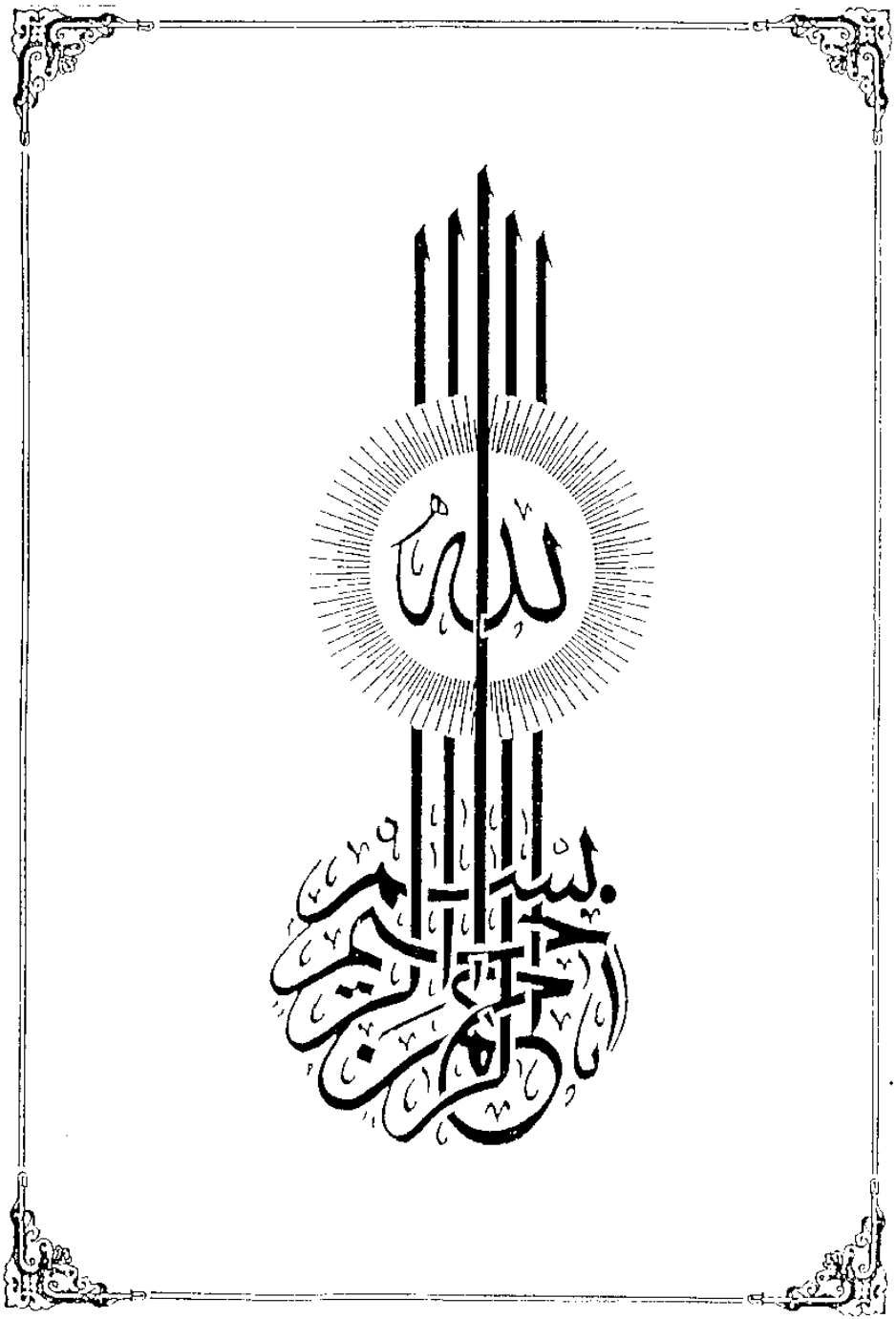

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ACKNOWLEDGEMENT

I would like to dedicate my hearty appreciation, sincere gratitude and great indebtedness to Dr. M. S. Karawya, Professor of Applied Pharmacognosy, Faculty of Pharmacy, Cairo University, and Dr. A. G. El-Warraki, Professor of Food Science, Faculty of Agriculture, Ain Shams University for the supervision of this work, their kind help, continuous encouragement, indispensable advice and valuable comments.

My deepest thanks and appreciation to Dr. M. S. El-Hifnawy, Assist. Professor of Applied Pharmacognosy, Faculty of Pharmacy, Cairo University for his continuous encouragement, fruitful assistance, kind attendance and advice throughout the course of this work.

My thanks are due to Dr. M. A. El Samkary, Lecturer of Food Science, Faculty of Agriculture, Ain Shams University, for his kind help in the part of microbiological study of this work.

The author wishes also to extent his thanks to Dr. Ahmed Ezz-El-Din Osman, Director of the Research Department at Cairo Food Flavors and Essence Company, at Giza, who furnished unlimited facilities which lead to

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the accomplishment of this work.

Thanks are also due to the staff members of the Research Department at Cairo Food Flavors and Essence Company, at Giza.

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I- INTRODUCTION

The family unbelliferae includes a number of important species which are distributed all over the world, particularly in high temperature regions (Binding, 1972). Many of the plants belonging to this family grow well in Egypt and produce crops, most of which are of economical importances. Among these important members are those of coriander , (Coriandrum sativum L.) and cumin (Cuminum cyminum L.).

Coriander was first introduced in some European countries specially those of the Mediterranean region, possibly by the Romans. Coriander, known to the Ancient Egyptians by the name "Quanshi", was cultivated in Palestine and other neighbouring countries. It was mentioned by Pliny (Binding 1972) and quoted by the Elbers Papyrus. The natives mixed it with wine as stimulant. It was stated that among the best grades of coriander was that importad from Egypt (Binding , 1972). El Antaki (1923) and El-Kortoby (1939), mentioned coriander under the Arabic name "Kosbara" or "Naquda". Coriander was also mentioned in the Bible; the Chinese have, for centuries, considered that the seeds of coriander possess an immortal power and the plant is sometimes called "Chinese parsley". Many years age, coriander was extensively cultivated in East Anglia as a crop called "Col" which on

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ripening was cut down and threshed like corn to obtain the seeds, which when taken in excess act as a narcotic (Binding, 1972). Old English sweet shops sold sugar coated coriander comfits which were taken as carminative and against flatulence.

Cumin on the other hand, was mentioned to be native to Egypt. It has been widely cultivated for centuries in Mediterranean countries and India. This herb is mentioned in the Bible and the ancient Greeks called it Cuminum. The volatile oil content of cumin fruits was prescribed for indigestion, dyspeptic headache and to overcome colic. Old herbalists considered cumin fruits to be superior for carminative purposes, (Binding, 1972).

Aim of work :

The present work was planned with the aim of evaluating the oils of Egyptian coriander and cumin fruits taking into consideration the effect of the methods of preparation as well as the effect of storage and packing at different temperatures and in glass and metallic

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containers on the properties and composition of the oil. The antibacterial effect of these oils was also studied.

Moreover, the work was extended to include the study of the fixed oils and marcs of the fruit under investigation.

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II- REVIEW OF LITERATURE

A) Essential oil of Coriandrum sativum L. :

Coriander oil :

Isolation and percentage of yield :

In the literature, the steam distilled oil of coriander was found to occur in varying amounts as reported by many authors. The percentage ranged from 0.4 % (Anon, 1917), 0.35 % (Face, 1924), 0.25 % (Roa et al., 1925), 0.85 % (Vanin and Chernoyarova, 1933), 1.7 % for fruits produced in Norway (Egil, 1942), to 1.4 % (Adamanis and Kaczmarok, 1955 and Hans, 1969).

Guenther (1952) stated that Chernuklin (1929) realized the importance of grinding the fruit prior to distillation where the yield of the oil increased by 17 percent, saving at the same time 10 to 15 percent of steam.

Guenther (1952) also stated that Tanasienko and Mezinova (1939) could shorten the time of oil distillation to 3-4 hours instead of 12-15 hours and increased the production by 21 % when the fruits were crushed. They also stated that distillation must be done immediately after crushing to avoid oil loss.

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