Ain Shams University
Faculty of Education
Department of Biological
Sciences & Geology

Studies on some relationships between some taxa in the Asteraceae

Thesis

Submitted in Partial Fulfillment for The Degree of Doctor of Philosophy in Science Teacher's Preparation (Botany)

By

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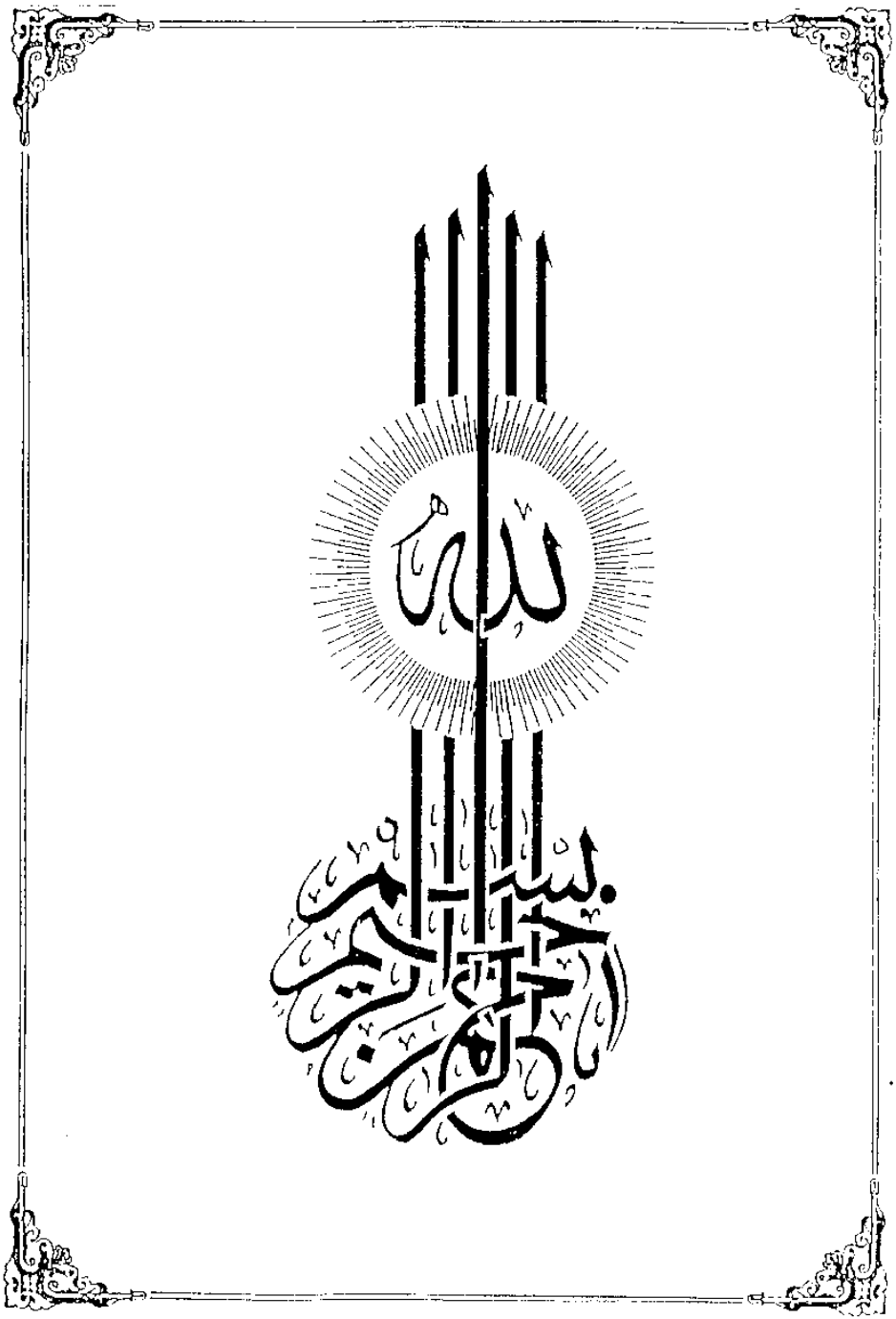

To

My Mother, My Wife,

Amr & Dina

Approval Sheet

Name: Ehab Abdel-Razik Kamel Aly

Title: **Studies on some relationships between some taxa in the Asteraceae.**

Supervisors — Approved

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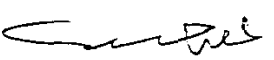
Prof. Dr. Abdel-Fattah Badr 

ABSTRACT

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Chromosomal studies have been carried out on 106 species of Asteraceae representing eight tribes and 54 genera in the main two subfamilies Cichorioideae and Asteroideae, including 47 species collected from Egypt. These studies include detailed characterization of karyological features of each species. New chromosome counts for 17 species and new numbers for seven species have been recorded. Basic chromosome numbers of $x = 4,5,6,7,8,9,10,11,12,13,14,15$ and 17 have been encountered among the studied species. The longest chromosomes are found in tribe Anthemideae (average MCL=3.60μm), while the shortest chromosomes are found in tribe Cardueae (average MCL=1.81 μm).

In addition, the systematic relationships of the 106 species based on selected 72 morphological characters have been evaluated using the taxonomy program NTsys-pc. The relationships of most of the studied species have been also evaluated based on 56 attributes derived from the SDS-PAGE profiles of storage seed proteins. Both lines of evidence produced relationships that support the tribal delimitations in the two subfamilies, but also revealed some important notations at the subtribal, generic and species levels. The revealed relationships of the studied species are discussed in the light of their cytological features and previous systematic and phylogenetic treatments.

Keywords: Asteraceae (Compositae), Classification, Taxonomy, Systematics, Evolution, Morphology, Chromosome number, Karyotype asymmetry, Karyology, Seed protein electrophoresis, Egyptian flora.

This

Thesis has not been previously submitted for a degree at this or at any other University.

E.A.K.Aly

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The Author

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