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**TAXONOMY, PHYTOGEOGRAPHY AND ETHNOBOTANY  
OF THE GENUS *ACALYPHA* L. (EUPHORBIACEAE) IN  
TANZANIA**



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**ABSTRACT**

The genus *Acalypha* L. (Euphorbiaceae) represented by 28 species and 4 varieties in Tanzania has been investigated with respect to taxonomy by employing a wide range of taxonomic data, inclusive of cytology, palynology and taxometrics. Gaps on the phytogeography of *Acalypha* and frontiers of knowledge on the ethnobotany of the genus are reported.

The study has resolved the taxonomic controversies of 12 problematical *Acalypha* species namely: *A. boiviniana*; *A. brachystachya*; *A. bussei*, *A. ciliata*; *A. engleri*; *A. fruticosa* vars. *fruticosa*, *eglandulosa*, *villosa*; *A. indica*; *A. lanceolata*; *A. neptunica* vars. *neptunica*, vars. *pubescens*; *A. paucifolia*; *A. psilostachya* vars. *psilostachya*, *glandulosa* and *A. villicaulis*. The study has also established a new record of the pollen morphology for 21 *Acalypha* species and 4 varieties, viz., *A. acrogyna*, *A. ambigua*, *A. bipartita*, *A. brachystachya*, *A. bussei*, *A. chirindica*, *A. echinus*, *A. engleri*, *A. gillmannii*, *A. hispida*, *A. lanceolata*, *A. neptunica* group, *A. nyasica*, *A. ornata*, *A. paucifolia*, *A. psilostachya* group, *A. stuhlmannii*, *A. villicaulis*, *A. volkensis*, *A. welwitschiana* and *A. wilkensiana*. Of the 13 *Acalypha* taxa studied cytologically, the chromosome counts of 8 species are new records for genus *Acalypha* and include *A. bipartita*; *A. chirindica*, *A. fruticosa* vars. *fruticosa*, *eglandulosa* and *villosa*; *A. neptunica*; *A. villicaulis* and *A. volkensis*.

Taximetric analyses as a modern taxonomic tool has enabled the establishment of a classification of the genus *Acalypha* L. in Tanzania based on the latest

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infrageneric classification of the genus *Acalypha* by Pax and Hoffmann (1924). In my classification, the latter's subgenus *Euacalypha* and all the subsequent series, except series *Oligogynae*, have been retained. Their subgenus *Linostachys* has been dropped and the author's series *Hypandre* replaced by Section *Monaxanthae* Muell. Arg. In the classification, four Sections are proposed namely: (I) *Polygynae - Pleurogynae*, comprising 8 species and 1 variety in 7 series. (II) *Pantogynae - Pleurogynae* comprising 7 species and 3 varieties in 6 series. (III) *Monaxanthae* Muell. Arg., comprising 3 species in a single series and (IV) *Pantogynae - Acrogynae*, comprising 9 species in 4 series.

On the basis of disjunct distribution pattern, Tanzanian *Acalypha* belong to 4 main categories namely, endemics (39.3%), moderates (42.4%), wides (12.1%) and cultivated (6.2%). The observed distribution pattern is dictated by altitude, edaphic factors, rainfall, temperature and vegetation types. Origin and evolution of Tanzanian *Acalypha* is associated with the disjunct afro-montane regions and Lake Victoria regional mosaic area. The flowering period of *Acalypha* ranges from less than 6 months to throughout the year. Ethnobotanical studies have revealed that 71.0% of the *Acalypha* taxa have medicinal values and treat 46 human diseases and conditions, grouped as bacterial, viral, fungal, trypanosomal, molluscicidal, cytotoxins and protein synthesis inhibition. Also, 64.5% of *Acalypha* taxa have other non-medicinal uses, viz., as vegetables, fodder, ornamentals and in construction.





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**DECLARATION**

I, Rogasian Lemmy Anselm Mahunnah hereby declare that the work submitted in this thesis, for the degree of Doctor of Philosophy in the University of Dar es Salaam, is the result of my own work except where acknowledged in the text. It has not been submitted, nor is it being concurrently submitted for a similar qualification in any other University.

Signed: LRogasian Lemmy Anselm Mahunnah Date: 14/09/1995


**ROGASIAN LEMMY ANSELM MAHUNNAH**

**(CANDIDATE)**

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**CERTIFICATION**

I certify that this work was carried out by Rogasian Lemmy Anselm Mahunnah in the Department of Botany of the University of Dar es Salaam. I have read the thesis and approve it for examination.

Signed:  Date: 29/9/1995

**DR. Z.K. RULANGARANGA**

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**DEDICATION**

This work is dedicated to my late parents,

**ANSELM AND SUSANA,**

to my wife ELIAMBUYA for her patience, sacrifices and encouragement, and to our children: ANSELM, SUSANA, TEENDWA, MSURI and SUSIE, who were deprived of their father's presence and personal care in the course of the study.



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CHAPTER ONE: GENERAL INTRODUCTION AND LITERATURE REVIEW

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