

121688
189
24/07



PHAMACOGNOSTIC AUTHENTICATION AND STANDARDIZATION OF

CRUDE PRODUCTS FROM ZINGIBERACEAE AND RUTACEAE

GRANTEE : Prof. K. Tuley de Silva.
RESEARCH ASSISTANT : Sethsiri Sunil Samaratunga.
GRANT No. : CSC / 86 / 8.1
DATE OF AWARD : 1st October 1986.
DEPARTMENT : Chemistry.
INSTITUTION : University of Sri Jayawardenapura.

121688

ABSTRACT

This research project attempts to make an authentic records for all parts (BARK, ROOT, LEAVES, FRUITS AND FLOWERS) of medicinal plants used in Ayurvedic medicine for their identification, authentication and standardization criteria.

Aegle marmelos (Beli), Feronia Limonia (Divul), Alpinia galanga (Aratta) and Kaempferia galanga (Hinguru piyali) were studied. For all parts of each plant, Thin Layer Chromatography, TAS (Thermal Extraction, transfer and application method for substances on a micro scale according to Stahl) analysis and Gas Liquid Chromatography were done in order to find the best profiles for this purpose. In addition to these Physico chemical properties of each plant material were also evaluated.

Each plant is described in a particular chapter and those are formatted in the form of Monographs.

Experiments were done according to the methods described in the relevant standards analytical books and the methods used were described in the Chapter Six (6).

These TLC and TAS/TLC profiles developed for each plant material reveal characteristic colour zone under UV and after treatment with a particular spray reagent. GLC profiles of essential oil extract of each plant material show their characteristic peaks with their retention times. But for some plant materials, essential oil content were not detectable according to the method described.

Some of these profiles developed are very characteristic for a particular plant and can therefore be used to distinguish different plant material from each other and test their presence in Ayurvedic medicinal preparations.

CONTENTS

ACKNOWLEDGEMENT	(i)
ABSTRACT	(iii)
CONTENTS	(iv)
LIST OF TABLES	(vii)
CHAPTER 1	Introduction.....	1
	1.1 Literature Review.....	4
CHAPTER 2	Monograph - <i>Aegle Marmelos</i> Corr.	19
CHAPTER 3	Monograph - <i>Feronia Limonia</i>	55
CHAPTER 4	Monograph - <i>Alpinia Galanga</i> (L.) Wild.....	80
CHAPTER 5	Monograph - <i>Kaempferia Galanga</i> Linn.....	95
	TAS - TLC FINGER PRINTS.....	109
	(a) <i>Aegle Marmelos</i> Corr.....	109
	(b) <i>Feronia Limonia</i>	113
	(c) <i>Alpinia Galanga</i> (L.) Wild and <i>Kaempferia Galanga</i> . Linn.....	116
CHAPTER 6	Experimental.....	117
	6.1 Phytochemical Screening.....	117
	6.1.1 Preparation of Methanol extract for phytochemical screening	117

6.1.1 (a) Screening for Alkaloids.....	118
6.1.1 (b) Screening for unsaturated sterols and triterpenes.....	119
6.1.1 (c) Screening for Saponins.....	120
6.1.1 (d) Screening for Flavonoides and Anthocyanidins.....	121
6.1.1 (e) Screening for Tannins & Polyphenols	122
6.1.1 (f) Screening for Anthraquinones.....	123
6.2 Thin-Layer Chromatography.....	124
6.2.1 Preparation of extracts for Thin Layer Chromatography.....	124
6.2.1 (a) For Analysis of Anthraglycocides, Arbutins, Bitter principles and Flavonoides.....	124
6.2.1 (b) For Analysis of Alkalodes.....	125
6.2.1 (c) For Analysis of Saponins.....	126
6.2.1 (d) For Analysis of Cardiac glycosides.	126
6.2.1 (e) For Analysis of essential oils, Coumarins, Phenols & Carboxylic acids.....	127
6.2.2 Solvents systems & Spray reagents.....	127

6.3	Preparation of Spray Reagents.....	128
	(a) Anisaldehyde-Sulphuric acid reagent.(AS)	
	(b) Vanilin-Sulphuric acid reagent.(VS)	
	(c) Dragendorff reagent.(DRG)	
	(d) Iodoplatinate reagent.(IP)	
	(e) Natural-Product Poly Ethylene Glycol reagent.(NP-PEG)	
6.4	TAS - TLC Finger Prints.....	130
	6.4.1 Manipulation of TAS oven.....	131
6.5	Evaluation of Physico- Chemical Properties	133
	6.5.1 Determination of quantitative extractive values	133
	6.5.1(a) Water soluble extractive	133
	6.5.1(b) Methanol soluble extractive	134
	6.5.1(c) Petether soluble extractive	135
	6.5.2 Determination of Ash residues	137
	6.5.2(a) Total ash content.....	137
	6.5.2(b) Acid (5N HCl) insoluble ash content	138
	6.5.2(c) Water insoluble ash content.....	139

6.5.3	Determination of moisture content.....	140
6.5.4	Determination of essential oil content	141
6.6.	Gas Liquid Chromatography (GLC)	142
CHAPTER 7	Results, Discussions and Conclusions.....	143
	References.....	150