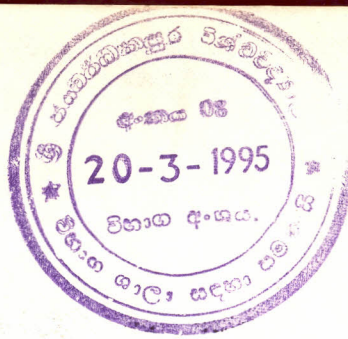


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**STUDY OF THE CHEMISTRY AND TECHNOLOGY
OF AYURVEDIC PREPARATIONS**

BY

ADIKARI MUDIYANSELAGE SRIYANI CHANDRALATHA MENIKE

B.Sc (GENERAL), HONS.

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ABSTRACT

Vasakarishtaya is a fermented ayurvedic drug prepared by using the root bark extract of A.vasica as the main ingredient with 10 other secondary (kalka) plant ingredients. .

Vasakarishtaya showed significant activity on three selected in-vitro immunoassays involving human complement and polymorphonuclear leukocytes indicating that this drug may influence both the humoral and the cellular components of the human immune system.

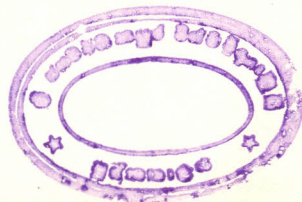
The main ingredient of Vasakarishtaya, A.vasica showed moderate activity on the three immune assays. On prolonged boiling, the root bark extract of A.vasica showed decreased inhibition of the classical pathway of complement activation and increased inhibition of the production of chemiluminescence by activated polymorphonuclear leukocytes. Thus the standardization of the boiling time is an important factor in the quality control of this drug. Some practitioners use a combination of root bark and leaves as the main ingredient for the preparation of Vasakarishtaya. A mixture of root bark and leaves of A.vasica showed higher inhibitory activity in classical pathway compared to the root bark. Compared to the immune activity of the main ingredient

most of the secondary plants showed higher immunomodulatory activity. During fermentation immunomodulatory activity of *Vasakarishtaya* remarkably increased after addition of secondary plants.

Secondary plants play a major role in the *Vasakarishtaya* fermentation. *W.fruticosa* flowers which represent 54% of the secondary plants are responsible for important changes in the fermentation medium. It lowers the pH by releasing gallic acid into the fermentation medium. This pH drop is important to the activity of invertase enzyme. At low pH (3.5-4.5) sucrose was hydrolysed to glucose and fructose by invertase present in the *W.fruticosa* flowers. This accelerates the initiation of fermentation by yeasts. Irradiation experiments clearly demonstrated that the source of invertase was not microbial. Of the secondary plants, *W.fruticosa* plays the major role in the fermentation.

On the other hand secondary plants increases the immunomodulatory activity of *Vasakarishtaya*. During fermentation, anticomplementary activity of *Vasakarishtaya* significantly increased after the addition of secondary plants. Secondary plants add some immune active compounds into the preparation such as gallic acid, vanillic acid and syringic acid. These phenolic acids are inhibitors of chemiluminescence production by Polymorphonuclear leukocytes induced by serum treated zymosan.

Alkaloids of *A.vasica* were found to be immuno active. During prolonged extraction, the alkaloid contents increased, however, 90% of vasicine, 83% of vasicinone and 76% of



vasicinolone were extracted at the end of the first day. During fermentation the vasicine content slightly decreased and vasicinone and vasicinolone contents slightly increased. Fermentative organisms were not found in the ingredients. Saccharomyces cerevisiae yeast was identified in two commercial and standard Vasakarishtaya. Zygosaccromyces bisporus was also found in the standard (laboratory prepared) Vasakarishtaya. Escillus cereus was found in one of the commercial (Bimal) samples as well as in the standard vasakarishtaya. It would appear that the source of microorganisms for this traditional fermentations is the environment.

Immunomodulatory activities were similar in both commercial Vasakarishtaya samples, The standard preparation showed highest anticomplementary activity. Most of the physico-chemical parameters were similar to each other in the commercial products and the standard product.

Maximum immunomodulatory activity and constant values of physico-chemical parameters were obtained at the end of the traditional 30 days fermentation period in the standard preparation of Vasakarishtaya.

TABLE OF CONTENTS	PAGE
TABLE OF CONTENTS	i-vi
LIST OF TABLES	vii-viii
LIST OF FIGURES	ix-x
ACKNOWLEDGEMENTS	xi-xiii
ABBREVIATIONS	xiv
ABSTRACT	xv-xvii

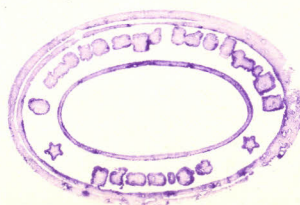
CHAPTER 1. INTRODUCTION

1.1	General introduction.	1
1.2	Objectives.	2
1.3	Ayurveda.	3
1.4	Fermentation in ayurveda.	4
1.5	Ethnopharmacognostic study of the Vasakarishmaya.	5
	1.5.1 Questionnaire.	6
	1.5.2 Field study.	8
	1.5.3 Standard preparation method of arishta and asawa.	10
	1.5.4 Fermentation vessel.	11
	1.5.5 Preparation of plant extract.	12
	1.5.6 Sweet material.	13
	1.5.7 Secondary(kalka) plant materials.	13
	1.5.8 Fermentation process.	14
	1.5.9 Sedimentation.	15
	1.5.10 Ethnopharmacological uses of	16

Vasakarishtaya.

1.6	Recipe of Vasakarishtaya.	16
1.7	<u>Adhatoda vasica</u> .	19
1.8	Immune functions selected for the estimation of biological activity of Vasakarishtaya.	26
1.8.1	The complement system.	26
1.8.2	The Classical Pathway.	28
1.8.3	The Alternative Pathway.	28
1.8.4	The Terminal Route.	30
1.8.5	Respiratory burst of Polymorphonuclear Leukocytes.	31
1.9	Outline of the thesis.	34
CHAPTER 2 RESULTS AND DISCUSSION		36
2	Immunomodulatory activity of Vasakarishtaya.	37
2.1	Immunomodulatory activity of commercially available Vasakarishtaya.	37
2.2	Development of immunomodulatory activity during fermentation.	39
2.3	Immunomodulatory activity of <u>A.vasica</u> root bark extract.	41
2.3.1	A comparison of the immunomodulatory activity of leaves and root bark of <u>A.vasica</u> .	44
2.3.2	Effect of boiling of <u>A.vasica</u> root bark on immunomodulatory activity.	46

2.3.3	levels of immune active alkaloids during boiling.	48
2.4	Immunomodulatory activity of secondary (kalka) plant materials.	49
2.5	Immunomodulatory activity of model fermentations.	53
2.6	Physico-chemical parameters.	56
2.6.1	pH value.	56
2.6.2	Sugar contents.	59
2.6.3	Alcohol content.	61
2.6.4	Immunomodulatory acids.	63
2.6.5	Variation of alkaloids content during fermentation.	66
2.7	Physico-chemical parameters of commercial Vasakarishtaya.	69
2.8	Hydrolysis of sucrose in Vasakarishtaya.	71
2.8.1	Microorganisms in the secondary plants.	71
2.8.2	Hydrolysis of sucrose by autoclaved secondary plants.	72
2.8.3	Hydrolysis of sucrose in the presence of <u>W.fruticosa</u> flowers.	73
2.8.4	Irradiation of <u>W.fruticosa</u> flowers.	76
2.9	Microorganisms in Vasakarishtaya.	
2.9.1	Source of microorganisms.	80
2.9.2	Microorganisms in commercial Vasakarishtaya.	82
2.9.3	Microorganisms in laboratory prepared Vasakarishtaya.	84
2.10	Conclusion.	88



2.11	Recomendation for the method of standardization.	93
CHAPTER 3 MATERIALS AND METHODS		
3.1	Instruments and Apparatus	95
3.2	Collection of raw materials.	
3.2.1	<u>Adahatoda vasica</u> root bark.	96
3.2.2	Collection of secondary plants.	96
3.2.3	Collection of sugar.	97
3.3	Preparation of plant extracts.	
3.3.1	Preparation of <u>A.vasica</u> root bark extract.	97
3.3.2	Dialysis of <u>A.vasica</u> root bark extract.	97
3.3.3	Preparation of <u>A.vasica</u> leaves and root bark extract.	98
3.3.4	Preparation of secondary plant extracts.	98
3.3.5	Extraction of mixture of secondary plants.	99
3.4	Preparation of standard Vasakarishtaya .	99
3.4.1	<u>A.vasica</u> root bark extract.	99
3.4.2	Addition of sweet material.	100
3.4.3	Addition of secondary plants.	100
3.4.4	Preparation of the mixture.	100
3.5	Preparation of model fermentations.	101
3.6	In vitro haemolytic microtiter complement assays.	103
3.6.1	Preparation of buffers and reagents.	103
3.6.1	Buffers and reagents for the assay.	104
3.6.2	Erythrocytes.	104
3.6.3	Test samples.	105

3.6.4	Microtitre assay.	105
3.7	Chemiluminescence assay for Polymorphonuclear Leucocytes.	110
3.7.1	Buffer	110
3.7.2	PMNL isolation.	110
3.7.3	Opsonization of Zymosan.	110
3.7.4	Chemiluminescence assay.	111
3.8	Mesurement of pH.	114
3.8.1	Mesurement of pH drop in secondary plants.	115
3.9	HPLC quantitation of sugars.	116
3.10	GLC quantitation of alcohol.	123
3.11	Quantitation of vasicine, vasicinone and vasicinolone by HPLC.	127
3.12	Quantitation of phenolic acids by HPLC.	134
3.13	Preparation of autoclaved secondary plants.	141
3.14	Preparation of sucrose solutions to hydrolyse by fungus.	142
3.15	Preparation of sucrose solutions to hydrolyse by secondary plants.	

3.18.1	Inoculation of secondary plants.	148
3.18.2	Inoculation of arishta.	148
3.19	Identification of two yeast strains.	
3.19.1	Morphological tests.	148
3.19.2	Fermentation tests.	150
3.19.3	Assimilation tests.	151
	References	153