

Laboratory Centre for Advanced Research in Indian System of Medicine (CARISM), (Unit of SASTRA University), Tirumalaisamudram, Thanjavur, Tamil Nadu

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-5692

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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BIOLOGICAL TESTING

I.	VETERINARY TESTING			
1.	Serum of Animals Treated with Ayurveda, Siddha Formulations and Chemical Compounds	Biochemistry		
		Glucose	CARISM/TP/BC/07 (GOD-POD Enzymatic / Endpoint)	Upto 500 mg/dl
		Billirubin-Total	CARISM/TP/BC/03 (Diazotized sulfanilic acid method/endpoint)	0.03 to 15 mg/dL
		Billirubin-Direct	CARISM/TP/BC/03 (Diazotized sulfanilic acid method/endpoint)	0.02 to 15 mg/dL
		AST (GOT)	CARISM/TP/BC/09 (Modified IFCC / Kinetic)	5 to 350 U/L
		ALT (GPT)	CARISM/TP/BC/10 (Modified IFCC / Kinetic)	3.1 to 350 U/L
		Creatinine	CARISM/TP/BC/06 (Kinetic/modified Jaffe's method)	0.04 –20 mg/dL
		Urea	CARISM/TP/BC/12 (Urease GLDH/enzymatic)	4.0 to 300mg/dL
		Total Cholesterol	CARISM/TP/BC/05 (CHOD-POD)	5 to 1000 mg/dL
		Triglycerides	CARISM/TP/BC/11 (Enzymatic /GPO-pod)	4.4 – 600 mg/dL
		Alkaline Phosphatase	CARISM/TP/BC/02 (AMP-NVKC/SFBC/Kinetic)	6 to 1200 U/L
		Total Protein	CARISM/TP/BC/08 (Biuret Red)	0.16 – 15 g/dL
		Albumin	CARISM/TP/BC/01(Bromo cresol Green dye binding/ End point)	0.11 to 7 g/dL

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2.	Tissues of Animals Treated with Ayurveda, Siddha Formulations and Chemical Compounds	Histopathology		
		Amyloid using Congo red stain	CARISM/TP/HIS/03 (Azo / amine groups and hydroxyl radicals binding method)	Qualitative
		Blood parasites using Giemsa stain	CARISM/TP/HIS/06 (Differential staining method)	Qualitative
		Glycogen using Periodic Acid Schiff stain	CARISM/TP/HIS/04 (Periodic and oxidation method)	Qualitative
		Iron using Perl's Prussian Blue stain	CARISM/TP/HIS/02 (Prussian blue reaction method)	Qualitative
		Collagen using Verhoffs Van Geison stain	CARISM/TP/HIS/05 (Differential staining of Collagen method)	Qualitative
		Differential staining of nucleus and cytoplasm using Hematoxylin & Eosin stain	CARISM/TP/HIS/01 (Differential staining of nucleus and cytoplasm method)	Qualitative
II.	AYUSH PRODUCTS			
1.	Ayurveda, Siddha and Herbal Formulations			
a.	Plant Materials Used in Ayurvedic/ Siddha Formulations Aerial Parts Dry Fruits Dry Seeds Fruit Rind Heart Wood	Macroscopic Size Color Surface Odor Taste	CARISM/TP/CHE/34	Qualitative (Visual Appearance)

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	Leaves Pericarp Plant (Whole) Rhizome Root Root Bark Root Tuber Stem Stem Bark Stem Extract Stem Tuber	Microscopic Standardizations and characterization of single drugs-Anatomy Powder Analysis Histochemical Starch grains Tannin Calcium Carbonate Crystal Mucilage Tannin Calcium oxalate crystal Fatty Acid Essential oil Lipid	CARISM/TP/CHE/34 CARISM/TP/CHE/35	Qualitative (Comparison) Qualitative (Visual Appearance)
b.	Plant Materials used in Ayurvedic/Siddha Formulations	Quantitative Microscopic test of leaf: Stomatal number Upper epidermis Lower epidermis Stomatal index Upper epidermis Lower epidermis Palisade ratio Vein islet number Vein termination number	CARISM/TP/CHE/36 CARISM/TP/CHE/37 CARISM/TP/CHE/38 CARISM/TP/CHE/38 CARISM/TP/CHE/38	(1-25) per mm ² (2-8) per mm ² (7-42) per mm ² (5-64) per mm ² (2-17) per mm ² (1-45) per mm ² (3-37) per mm ²
c.	Churna AFI & SAFI	Macroscopic Test: Color odor Taste Microscopic Test	CARISM/TP/CHE/34 CARISM/TP/CHE/34	Qualitative (Visual Appearance) Qualitative (Comparison)

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		Histochemical Detection: Starch grains Tannin Calcium Carbonate Crystal Mucilage Tannin Calcium oxalate crystal Fatty Acid Essential oil Lipid	CARISM/TP/CHE/35	Qualitative (Visual Appearance)

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CHEMICAL TESTING

I.	AYUSH PRODUCTS			
1.	Asava and Arista Kumaryasava(A)	Appearance Characteristics	CARISM/TP/CHE/01	Qualitative
	Kumaryasava (B)	pH	CARISM/TP/CHE/02	2.5 – 7.5
	Lohasava	Specific Gravity	CARISM/TP/CHE/03	0.5-1.5
	Vasakasava	Total Solids	CARISM/TP/CHE/04	1-80%w/w
	Asokarista	Alcohol Soluble Extractive	CARISM/TP/CHE/10	4-85%w/w
	Jirakarista	Saponification Value	CARISM/TP/CHE/13	150-270
	Dasamularista	Peroxide Value	CARISM/TP/CHE/14	0.5-10
	Draksarista	Carbohydrates	CARISM/TP/CHE/18	1-65%w/w
	Balarista	Rancidity	CARISM/TP/CHE/19	Qualitative
		Heavy Metal		
		Lead	CARISM/TP/CHE/23	0.05 mg/kg to 10000 mg/kg
		Cadmium	CARISM/TP/CHE/24	0.05 mg/kg to 10000 mg/kg
		HPTLC Profiles	CARISM/TP/CHE/26, CARISM/TP/CHE/31	Qualitative
2.	Avaleha or Leha and Paka	Appearance Characteristics	CARISM/TP/CHE/01	Qualitative
	Cyavanaprasa	pH	CARISM/TP/CHE/02	2.5 – 7.5
	Dasamula Haritaki	Specific Gravity	CARISM/TP/CHE/03	0.5-1.5
	Bilvadi Leha	Total Solids	CARISM/TP/CHE/04	1-80%w/w
	Saubhagya Sunthi	Ash	CARISM/TP/CHE/05	1-25%w/w
		Loss on Drying	CARISM/TP/CHE/07	1-20%w/w
	Meluku	Fat	CARISM/TP/CHE/11	1-30%w/w
	Iraca Kanti Meluku	Carbohydrates	CARISM/TP/CHE/18	1-65%w/w
	Iti Vallati	Heavy Metal		
	Nanti Meluku	Lead	CARISM/TP/CHE/23	0.05 mg/kg to 10000 mg/kg

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	Ilakam/Ilekiyam Impura Ilakam Nellikai Ilakam Vilvati Ilakam	Cadmium	CARISM/TP/CHE/24	0.05 mg/kg to 10000 mg/kg
	Iracayanam Tippili Iracayanam	HPTLC Profiles	CARISM/TP/CHE/26 CARISM/TP/CHE/31	Qualitative
3.	Curna Ajamodadi Curna Eladi Curna Karpuradi Curna Talisadya Curna Trikatu Curna Triphala Curna Sitopaladi Curna Hingvastaka Curna Hingvadi Curna Hinguvacadi Curna Hutabhugeadi Curna	Appearance Characteristics pH Ash Acid Insoluble Ash Loss on Drying Volatile Oil Water Soluble Extractive Alcohol Soluble Extractive Acid Value Carbohydrates Heavy Metal Lead	(CARISM/TP/CHE/01) CARISM/TP/CHE/02 CARISM/TP/CHE/05 CARISM/TP/CHE/06 CARISM/TP/CHE/07 CARISM/TP/CHE/08 CARISM/TP/CHE/09 CARISM/TP/CHE/10 CARISM/TP/CHE/12 CARISM/TP/CHE/18 CARISM/TP/CHE/23	Qualitative 2.5 – 7.5 1-25%w/w 0.1-10%w/w 1-20%w/w 0.5-10%w/w 4-85%w/w 4-85% w/w 1-6 1-65% w/w 0.05 mg/kg to 10000 mg/kg
	Curanam Pantcatipakkinic Curanam Amukkarac Curanam Attatic Curanam Civataic Curanam Elastic Curanam Tiratcatic Curanam	Cadmium HPTLC Profiles Zeta Sizer Zeta Potential Particle Size	CARISM/TP/CHE/24 CARISM/TP/CHE/26 & 31 CARISM/TP/CHE/33	0.05mg/kg to 10000mg/kg Qualitative Qualitative 0.6 nm-10000 nm

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4.	Lepa Kaccuradi Lepa Dasanga Lepa Sinduradi Lepa Kulambu Kaucikar Kulambu	Appearance	(CARISM/TP/CHE/01)	Qualitative
		pH	CARISM/TP/CHE/02	2.5 – 7.5
		Loss on Drying	CARISM/TP/CHE/07	1-20%w/w
		Fat	CARISM/TP/CHE/11	1-30%w/w
		Acid Value	CARISM/TP/CHE/12	1-6
		Rancidity	CARISM/TP/CHE/19	Qualitative
		Heavy Metal		
		Lead	CARISM/TP/CHE/23	0.05 mg/kg to 10000 mg/kg
		Cadmium	CARISM/TP/CHE/24	0.05 mg/kg to 10000 mg/kg
		HPTLC Profiles	CARISM/TP/CHE/26 & 31	Qualitative
		Degradation Temperature	CARISM/TP/CHE/32	Room Temp - 1000°C
		Phase Transition	CARISM/TP/CHE/32	Room Temp - 1000°C
		Zeta Sizer		
		Zeta Potential	CARISM/TP/CHE/33	Qualitative
Particle Size		0.6 nm-10000 nm		
5.	Bhasma Abhraka Bhasma Kasisa Bhasma, Godanti Bhasma Tamra Bhasma Trivanga Bhasma Naga Bhasma Yasada Bhasma Lauha Bhasma Vanga Bhasma Sankha Bhasma Parpam Canku Parpam Kalnar Parpam Kantaka Parpam Muttu Ccippi	Appearance	CARISM/TP/CHE/01	Qualitative
		Ash	CARISM/TP/CHE/05	1-25%w/w
		Acid Insoluble Ash	CARISM/TP/CHE/06	0.1-10%w/w
		Loss on Drying	CARISM/TP/CHE/07	1-20%w/w
		Assay for Calcium	CARISM/TP/CHE/20	0.1-50%w/w
		Assay for Copper	CARISM/TP/CHE/21	1-100%w/w
		Assay for Iron	CARISM/TP/CHE/22	1-100%w/w
		Heavy Metal		
		Lead	CARISM/TP/CHE/23	0.05 mg/kg to 10000 mg/kg
		Cadmium	CARISM/TP/CHE/24	0.05 mg/kg to 10000 mg/kg
		Elemental		
		Carbon	CARISM/TP/CHE/25	2-90%w/w
		Hydrogen	CARISM/TP/CHE/25	1-90%w/w
		Nitrogen	CARISM/TP/CHE/25	1-90%w/w

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	Parpam Patikara Parpam Vel Vanka Parpam	Degradation Temperature	CARISM/TP/CHE/32	Room Temp - 1000°C
		Phase Transition	CARISM/TP/CHE/32	Room Temp - 1000°C
	Centuram Appirakac Centuram, Ayakantac Centuram, Canta Marutac, Centuram and Kantac Centuram	Zeta Sizer		
		Zeta Potential	CARISM/TP/CHE/33	Qualitative
		Particle Size		0.6 nm-8900nm
6.	Ghrta Dasamula Ghrta Dhanvantara Ghrta	Appearance	CARISM/TP/CHE/01	Qualitative
		Specific Gravity	CARISM/TP/CHE/03	0.5-1.5
		Fat Content	CARISM/TP/CHE/11	1-30%w/w
		Acid value	CARISM/TP/CHE/12	1-6
		Saponification Value	CARISM/TP/CHE/13	150-270
	Ney Cintil Ney Pirami Ney Tutuvalai Ney	Peroxide Value	CARISM/TP/CHE/14	0.5-10
		Iodine Value	CARISM/TP/CHE/15	6-205
		Rancidity	CARISM/TP/CHE/19	Qualitative
	Vallarai Ney	Heavy Metal		
		Lead	CARISM/TP/CHE/23	0.05 mg/kg to 10000 mg/kg
		Cadmium	CARISM/TP/CHE/24	0.05 mg/kg to 10000 mg/kg
		HPTLC Profiles	CARISM/TP/CHE/26 & 31	Qualitative
7.	Vati-Gutika Eladi Gutika Kasturyadi Gutika Gandhaka Vati Gorocanadi Vati Candraprabha Vati Citrakadi Gutika Cukkumtippalyadi	Appearance	CARISM/TP/CHE/01	Qualitative
		Characteristics		
		Ash	CARISM/TP/CHE/05	1-25% w/w
		Acid Insoluble Ash	CARISM/TP/CHE/06	0.1-10%w/w
		Loss on Drying	CARISM/TP/CHE/07	1-20%w/w
		Water Soluble Extractive	CARISM/TP/CHE/09	4-85%w/w
		Alcohol Soluble Extractive	CARISM/TP/CHE/10	4-85%w/w
		Disintegration	CARISM/TP/CHE/16	30 Sec to 1 Hour

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	Gutika DugdhaVati Dhanvantara Gutika Plihari Vatika Marma Gutika Mrtasanjivani Gutika Lavangadi Vati Lasunadi Vati Sanjivani Vati Mattirai/Kulikai Canta Cantirotayam Kapata Mattirai Korocanai Mattirai Kunkumappu and Mattirai Vatakam Impural Vatakam Inci Vatakam and Talicati Vatakam	Uniformity of Weight for Tablets	CARISM/TP/CHE/17	50 mg – 2g	
		Uniformity of Weight for Capsules	CARISM/TP/CHE/17	50 mg – 2 g	
		Carbohydrates	CARISM/TP/CHE/18	1-65 % w/w	
		Heavy Metal			
		Lead	CARISM/TP/CHE/23	0.05 mg/kg to 10000 mg/kg	
		Cadmium	CARISM/TP/CHE/24	0.05 mg/kg to 10000 mg/kg	
		Elemental			
		Carbon	CARISM/TP/CHE/25	2-90%w/w	
		Hydrogen	CARISM/TP/CHE/25	1-90%w/w	
		Nitrogen	CARISM/TP/CHE/25	1-90%w/w	
		HPTLC Profiles	CARISM/TP/CHE/26 &31	Qualitative	
8.		Kupipakva	Appearance	CARISM/TP/CHE/01	Qualitative
		Rasayana	Characteristics		
		Makaravaja	Ash	CARISM/TP/CHE/05	1-25%w/w
		Rasakarupra	Acid Insoluble Ash	CARISM/TP/CHE/06	0.1-10%w/w
	Rasasindura	Loss on Drying	CARISM/TP/CHE/07	1-20%w/w	
		Calcium	CARISM/TP/CHE/20	0.1-50%w/w	
		Copper	CARISM/TP/CHE/21	1-100%w/w	
		Iron	CARISM/TP/CHE/22	1-100% w/w	
		Heavy Metal			
		Lead	CARISM/TP/CHE/23	0.05 mg/kg to 10000 mg/kg	
		Cadmium	CARISM/TP/CHE/24	0.05 mg/kg to 10000 mg/kg	

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		Elemental		
		Carbon	CARISM/TP/CHE/25	2-90%w/w
		Hydrogen	CARISM/TP/CHE/25	1-90%w/w
		Nitrogen	CARISM/TP/CHE/25	1-90%w/w
		Degradation Temperature	CARISM/TP/CHE/32	Room Temp - 1000 °C
		Phase Transition	CARISM/TP/CHE/32	Room Temp - 1000 °C
		Zeta Sizer		
		Zeta Potential	CARISM/TP/CHE/33	Qualitative
		Particle Size		0.6 nm-8900nm
9.	Siddha & Ayurveda Drugs (Raw Materials)	HPTLC Profiles	(CARISM/TP/CHE/26) (CARISM/TP/CHE/31)	Qualitative