



Review Article

THERAPEUTIC CATEGORIZATION AND PHYSICOCHEMICAL PROFILING OF PROPRIETARY
AYURVEDIC HERBAL CAPSULES MARKETED IN INDIA

Swarnabala Ganti^{1,2*}, Salma Farheen^{1,2}, Anahita Bharadwaj^{1,3*}, Sanjeeva Rao Itikala²

*¹Swaram Biochem, Secunderabad.

²Varun Herbals, Hyderabad.

³Department of Agricultural & Biological Engineering, Penn State College, Pennsylvania, USA.

Article info

Article History:

Received: 19-03-2026

Accepted: 15-04-2026

Published: 12-05-2026

KEYWORDS:

Ayurvedic capsules,
standardization,
physicochemical
analysis, TLC
profiling, bioactive
variability,
proprietary
formulations.

ABSTRACT

The present study evaluated 99 marketed herbal capsule formulations across diverse therapeutic categories, including musculoskeletal health, renal care, dermatology, diabetes, gastrointestinal disorders, cardiac wellness, immunity, respiratory support, sexual health, neurological function, women's health, and hepatobiliary care. Representative products were grouped into 14 categories, with recurring botanicals such as *Withania somnifera*, *Tinospora cordifolia*, *Emblica officinalis*, *Commiphora mukul*, and classical poly-herbal constructs like *Triphala* and *Trikatu*. Physicochemical analysis revealed wide variability in pH (1.05–9.29; mean 5.02 ± 1.38), water-soluble matter (WSM: 3.4–96.44%; mean $50.81 \pm 23.01\%$), and alcohol-soluble matter (ASM: 2.6–94.8%; mean $28.25 \pm 16.42\%$), reflecting heterogeneity in raw material quality, extraction efficiency, and formulation practices. Statistical correlation indicated a moderate positive relationship between WSM and ASM ($r = 0.324$, $R^2 = 0.105$, $p < 0.01$), suggesting partial overlap in phytochemical solubility but underscoring the need for solvent-specific quality assessment. TLC profiling demonstrated significant variation in R_f values and spot distribution, highlighting inconsistencies in phytochemical composition and lack of standardized marker validation. Ayurvedic principles provided interpretative insights into solubility and pH variability, linking physicochemical parameters with traditional concepts of *Rasa*, *Guna*, *Virya*, and *Vipaka*. Collectively, the findings emphasize poor label transparency, substantial physicochemical variability, and inconsistent TLC fingerprints, raising concerns about therapeutic predictability and reproducibility. Proposed standard ranges (pH 4.0–7.0; WSM 40–80%; ASM 15–35%; TLC 3–8 spots) underscore the need for stricter regulatory oversight, standardized extraction protocols, and incorporation of quantitative phytochemical markers to ensure quality, safety, and efficacy of herbal capsule formulations.

INTRODUCTION

In India, the market for proprietary Ayurvedic capsules is vibrant. While, in the modern healthcare market, analytical validation has become essential for ensuring product quality, safety, and consumer acceptance. Herbal and Ayurvedic formulations, being plant-based, require rigorous evaluation like food and pharmaceutical products to establish identity, purity, and efficacy.

Despite the existence of guidelines in the Ayurvedic Formulary, many proprietary Ayurvedic medicines lack defined analytical standards, particularly with respect to acceptable parameter ranges. Manufacturers often develop formulations based on empirical knowledge, leading to variability in composition and therapeutic outcomes. This creates challenges in distinguishing classical (*Shastric*) formulations from proprietary products, thus hampering the cross-product comparison and limits the derivation of practical acceptance criteria.

Traditional analytical methods such as titrimetric and gravimetric techniques continue to play a role due to their simplicity and cost-effectiveness, while modern techniques like chromatography and

Access this article online

Quick Response Code



<https://doi.org/10.47070/ijapr.v14i5.4162>

Published by Mahadev Publications (Regd.)
publication licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0
International (CC BY-NC-SA 4.0)

spectroscopy provide enhanced sensitivity and specificity. Proximate analysis originally developed for food evaluation, has relevance in assessing Ayurvedic formulations, including parameters such as moisture, ash, extractive values, and bioactive content.

Given the increasing commercialization of Ayurvedic products, there is a critical need to establish standard analytical ranges and validation protocols. This study aims to contribute to this gap by analyzing marketed Ayurvedic capsules and proposing baseline data for future standardization, to provide a workable foundation to describe such multi-component products while acknowledging inherent raw-material variability.

MATERIALS AND METHODS

Sample Collection

A total of 99 Ayurvedic capsule formulations from various manufacturers were submitted to a testing laboratory, Table 1. Among these, 38 samples had clearly defined label compositions, Table 2.

Categorization of Formulations

The formulations were categorized based on therapeutic indications:

Musculoskeletal pain, inflammation & joint/bone health; Renal & urinary health/calculi & prostate; Hemorrhoids/ proctologic care; Dermatology / skin & blood purification; Diabetes management; Weight management/metabolic support; Gastrointestinal (dyspepsia, diarrhea, ulcer); Cardiac & cholesterol management; Immunity, adaptogens & general vitality; Respiratory/cough & cold; Men's health/sexual wellness; Mental health, neurological cognition & mood; Women's health; and Liver & hepatobiliary (with GI support)

Analytical Parameters

The following physicochemical parameters were evaluated: pH determination, Water-soluble matter (WSM), Alcohol-soluble matter (ASM) and Thin-layer chromatography (TLC) profiling with Rf values, number and colour of spots observed.

Quality Control of Raw Materials

Single plant materials are normally evaluated using: Macroscopic and microscopic identification, loss on drying, total ash and acid-insoluble ash, extractive values (water and alcohol soluble), TLC/HPTLC profiling, microbial load (*E. coli*, *Salmonella*, etc.), heavy metals (Pb, Cd, Hg, As), pesticide residues and aflatoxins.

Table 1: Capsules - Trends in Analytical Test Parameters in Ayurvedic Formulations

S.No	Name of the Formulation	pH	WSM	ASM	Rf Values	Spots (colours)
1	Aplex Capsule	9.29	70.65	28.24	0.33, 0.43, 0.52	Yellow, green, light yellow
2	Stunex Capsule	4.11	63.74	12.62	0.40, 0.46, 0.51, 0.57	Purple, green, light yellow, yellow
3	Hemrid Capsule	2.4	38.20	16.06	0.48, 0.60	Purple, light yellow
4	Scour Capsule	4.21	25.18	10.34	0.24, 0.31, 0.38	Light yellow, purple, yellow
5	Dykure Capsule	4.85	48.80	61.80	0.33, 0.44	Yellow, light brown
6	Shape well capsules	4.85	52.60	37.36	0.77, 0.85,	Yellow, violet
7	Orthofit Capsule	5.70	78.00	28.20	0.23, 0.44	Yellow, light brown
8	Pykure Capsule	4.92	60.00	94.80	0.44, 0.88	Grey, orange red
9	Proctapy	4.15	33.00	31.00	0.32, 0.36, 0.44	Light yellow, yellow, green
10	Dianorm Capsule	4.02	59.20	28.40	0.24, 0.30, 0.39, 0.50	Orange, green, light green, yellow
11	C-4 Capsule	4.04	35.80	44.00	0.34	Light yellow
12	Osteo plus Capsule	5.16	67.80	13.20	0.31, 0.42, 0.55, 0.78	Yellow, yellow, green, yellow
13	Ayurguard	4.22	50.04	19.20	0.30, 0.38, 0.47	Orange, light yellow, yellow
14	Immunoj Capsule	5.53	42.06	17.16	0.59, 0.70, 0.48	Yellow, light yellow, purple
15	N-Kof Capsule	4.81	41.84	24.84	0.54, 0.61, 0.65	Yellow, green, light yellow
16	Osteoflex Capsule	7.86	25.18	17.64	0.61, 0.78	Yellow, blue
17	Etame plus/ Manumen / Puresh Capsule	4.95	43.16	17.58	0.35, 0.38, 0.44, 0.50, 0.53, 0.56, 0.60	Yellow, purple, pink, light yellow, pink, orange, purple
18	Delite Capsule	5.02	28.80	17.10	0.25, 0.35	Yellow, light yellow
19	Proste well/ Freeflow/ Prostana	5.15	89.54	15.98	0.21, 0.33, 0.56	Yellow, pink, purple
20	Immunitas /Lewis/ Immunin	5.09	82.67	24.24	0.70	Violet

21	Memoir/ Epinil/ Eptavir	5.08	89.87	63.24	0.29	Yellow
22	Mentis/ Felix/ Happymind	5.12	93.56	39.38	0.33, 0.61, 0.66	Yellow, purple, light yellow
23	Navitas / Energin / Asilus	4.70	89.80	27.38	0.17, 0.25, 0.43	Yellow, purple
24	Women Care/ Ladycare/ Gynowell	4.84	87.84	11.24	0.26, 0.21, 0.35	Yellow, purple, pink
25	Cholestat/ Cholenil/ Cardiacare	5.37	88.8	34.38	0.06, 0.34, 0.58, 0.67	Yellow, yellow, violet, purple
26	Migracare/ Capitus/ Indolenta	5.02	92.01	33.98	0.85	Purple
27	Menosafe/ Meno/ Menogard	3.95	80.32	41.60	0.44, 0.33	Brown, purple
28	Nopoenal/ Nodolar/ painoff	4.50	46.36	44.28	0.27	Yellow
29	Normohep/ Hepar/ Livgod	5.09	91.34	24.84	0.29, 0.61	Yellow, purple
30	Vitayu Capsules	1.05	53.58	23.3	0.58, 0.71	Yellow, orange
31	No-con Capsule	4.41	32.8	27.00	0.14, 0.23, 0.33, 0.58, 0.85	Grey, light grey, light violet, grey, light violet
32	Boswel forte Capsule	9.02	34.40	30.60	0.07, 0.13, 0.17, 0.23, 0.26	Violet, grey, grey, violet, grey
33	Pylari capsules	5.36	21.18	20.28	0.34, 0.21	Yellow, orange
34	D.K.Sura capsules	3.76	55.36	38.7	0.26	Pink
35	Trigym	4.15	79.70	32.26	0.47, 0.52, 0.60, 0.65	Yellow, light yellow, orange, purple
36	Heptas	5.36	96.44	50.30	0.50, 0.89, 0.76	Yellow, light yellow, orange
37	Say capsule	3.82	93.28	35.62	0.39, 0.45, 0.59	Light yellow, yellow, blue
38	Dykure Capsule	4.36	50.60	44.40	0.30, 0.38, 0.44	Yellow, light green, pink
39	Safed Musli Capsule	5.30	72.50	38.40	0.96, 0.54	Brown, light yellow
40	Tezo1 Capsule	6.40	86.00	22.80	0.26	Light brown
41	Vigor-D- Capsules	5.04	49.60	41.80	0.25	Light brown
42	Kidney stone capsule	6.84	49.60	17.80	0.20	Yellow
43	Cargawin Capsule	4.78	85.80	64.40	0.24	Yellow
44	Ramtone Capsule	6.30	72.40	35.50	0.66, 0.92	Brown, yellow
45	Glucoram Capsule	5.74	85.35	32.76	0.94, 0.98	brown, yellow
46	Suvascha Capsule	5.92	50.62	25.52	0.66, 0.98	Yellow, light yellow
47	Kamalin Capsule/ Livram/ V.Liv Capsule	3.68	61.38	25.00	0.73, 0.97	light brown, yellow
48	Daib. Nil Supor Capsule	5.27	41.16	33.32	0.875, 0.625	Pink, yellow
49	Detox Capsules	6.84	21.75	26.40	0.76, 0.42, 0.95	Yellow, light brown, brown
50	Shreeroid Capsule	5.26	59.00	29.40	0.82, 0.51, 0.17	Grey, brown, light brown
51	X-tacy capsule	4.83	43.92	28.52	0.67, 0.60, 0.47	Green, pink, yellow
52	X-tacy-F capsule	4.43	66.52	42.74	0.74, 0.51, 0.46	Yellow, light yellow, light brown
53	Control-D Capsule	3.51	65.12	40.04	0.98, 0.87, 0.62, 0.65	Yellow, light green, pink, green
54	Seza Capsule	3.93	52.00	24.80	0.46, 0.31	Yellow, light brown
55	Myfort Capsule	4.60	61.60	22.00	0.94, 0.50, 0.65	Light brown, yellow, light yellow
56	Manmadha Gutica	4.72	32.77	29.64	0.20, 0.66	Yellow, light yellow

57	Leucure Capsule	4.19	71.84	77.96	0.47, 0.80, 0.85, 0.97	Yellow, blue, pink, light yellow
58	Estrup Capsule	4.51	42.56	20.60	0.26, 0.33, 0.44, 0.97	Orange, green, pink, yellow
59	Anmal Capsule	4.28	41.60	33.90	0.28, 0.43, 0.50, 0.78	Purple, yellow, light yellow, light yellow
60	M.Pause Capsule	4.23	70.20	55.16	0.51, 0.62, 0.70	light yellow, yellow, purple
61	Veervir Capsule	5.11	77.82	19.02	0.72, 0.66, 0.61	Purple, green, yellow
62	Rhinus Capsule	4.44	80.16	18.0	0.35, 0.50	Green, yellow
63	Aasha Capsule	2.95	64.32	49.56	0.28, 0.35, 0.45	Yellow, yellow, light yellow
64	Rumalla Capsule	5.11	30.92	30.24	0.70, 0.78, 0.82	Yellow, green, pink
65	Samartho Capsule	3.36	33.30	32.90	0.26, 0.35, 0.44, 0.60	Purple, light yellow, yellow, purple
66	Maxx Power Capsule/ Power Cap	4.87	42.56	19.58	0.40, 0.45, 0.59	Yellow, purple, green
67	Alday Capsule	4.88	72.12	16.96	0.65, 0.95	Light yellow, yellow
68	Indo Bull Capsule	4.10	58.70	48.98	0.78, 0.32	Grey, yellow
69	Chatwall's Pykure Capsule	2.94	62.42	68.54	0.54	Yellow
70	Arshocare Capsule	3.54	61.28	56.48	0.67, 0.58	Blue, light yellow
71	Angxeenorm Capsules	4.08	20.97	36.02	0.58	Yellow
72	Cognit Capsules	3.92	30.62	8.68	0.27, 0.63	Purple, yellow)
73	Obeslay Capsules	3.27	65.76	29.16	0.13, 0.54, 0.96	Light yellow, pink, yellow
74	I c+ Capsules	4.29	34.98	14.28	0.18, 0.40, 0.75, 0.95	Light yellow, brown, pink, yellow
75	Jkare capsules	1.97	23.65	29.92	0.35, 0.48, 0.61	Yellow, light yellow, orange
76	Yellow Capsules	4.82	42.48	34.28	0.57	Yellow
77	Memorind Capsules	5.81	34.00	26.50	0.04, 0.11, 0.30, 0.38, 0.51, 0.60, 0.66, 0.72, 0.92	Grey, grey, violet, grey, violet, light violet, light violet, violet, purple
78	Nervind Capsule	8.22	20.00	7.00	0.08, 0.14, 0.26, 0.32, 0.51, 0.63, 0.75, 0.92	Greyish violet, violet, violet, light violet, violet, violet, violet, light violet
79	Slimind Capsule	8.95	36.50	14.50	0.05, 0.08, 0.14, 0.29, 0.34, 0.52, 0.62, 0.67, 0.80, 0.82	Violet, violet, grey, violetish grey, violet, violet, violet, light violet, violet, violet
80	Respind Capsule	9.13	20.00	7.00	0.07, 0.18, 0.34, 0.59, 0.89	Grey, grey, violet, violet, purple
81	Diurind Capsule	6.22	26.50	9.50	0.04, 0.07, 0.17, 0.22, 0.34, 0.55, 0.70, 0.80, 0.98	Grey, grey, grey, violet, violet, violetish grey, violet, violet, violet
82	Bela Forte Capsules	5.98	34.00	26.5	0.07, 0.13, 0.27, 0.50, 0.64, 0.77, 0.94	Grey, grey, violet, grey, light violet, light blue, violet
83	Parivar Arhtonon Capsule	7.44	51.00	16.8	0.08, 0.12, 0.15, 0.17, 0.25, 0.36, 0.41, 0.48, 0.56, 0.65, 0.72, 0.81, 0.93	Grey, light blue, violet, light blue, brown, purple, violet, purple, blue, violet, violet, violetish grey, violet
84	Neurotip Capsules	6.09	49.00	7.60	0.06, 0.10, 0.13, 0.16, 0.22, 0.27, 0.40, 0.55, 0.66, 0.91	Light blue, brown, grey, light violet, grey, grey, violet, light violet, light grey, violet
85	Piloguard Capsules	6.11	32.50	10.00	0.08, 0.11, 0.16, 0.23, 0.33, 0.40, 0.57, 0.64, 0.89	Blue, brown, brown, grey, grey, light violet, violet, violet, purple
86	Calcurex Capsules	4.72	2.00	11.60	0.07, 0.22, 0.33, 0.39,	Pink, grey, grey, violet, light violet,

					0.74, 0.87	light violet
87	Energel Capsules	4.66	33.00	10.00	0.10, 0.17, 0.24, 0.4, 0.49, 0.60, 0.85, 0.97	Grey, grey, violet, light violet, violet, violet, light violet, grey
88	Stranil Capsules	4.83	31.50	16.00	0.15, 0.20, 0.37, 0.51, 0.51, 0.81, 0.92	Grey, grey, violet, light violet, light violet, light violet, light violet
89	Alerginil Capsules	5.95	24.50	9.20	0.07, 0.14, 0.18, 0.35, 0.51, 0.62, 0.80, 0.93	Grey, light grey, violet, light violet, light violet, grey, light violet, violet
90	Relax Capsules	4.91	15.50	11.00	0.16, 0.23, 0.43, 0.66, 0.75	Grey, light violet, violet, grey, light violet
91	Pleasant capsules	5.79	15.00	15.8	0.09, 0.12, 0.18, 0.22, 0.30, 0.36, 0.44, 0.55, 0.75, 0.93	Grey, grey, light violet, light violet, violet, violet, violet, light violet, blue, light blue
92	Dermoguard capsules	5.80	21.00	11.00	0.12, 0.16, 0.20, 0.30, 0.40, 0.93	Grey, grey, grey, light grey, violet, light violet
93	Galex capsules	4.46	47.50	22.40	0.07, 0.12, 0.19, 0.41, 0.50, 0.84	Grey, light violet, violet, grey, light violet, light violet
94	OBE care capsules	5.24	40.50	13.20	0.11, 0.22, 0.41, 0.61, 0.75, 0.94	Grey, light violet, violet, grey, light violet, light violet
95	Hepatone capsule	5.66	21.00	9.28	0.05, 0.18, 0.23, 0.28, 0.63	Grey, violet, light grey, violet, violet
96	Rejuvincapsules	5.66	21.00	9.28	0.05, 0.18, 0.23, 0.29, 0.44, 0.54	Grey, violet, light grey, grey, violet, light violet
97	Haematone capsules	5.12	21.50	11.60	0.09, 0.18, 0.20, 0.30, 0.37, 0.58, 0.81, 0.91, 0.98	Grey, light violet, light violet, grey, violet, light grey, light violet, pink, pink
98	Vardhane capsules	5.61	26.00	28.8	0.16, 0.26, 0.39, 0.47, 0.69, 0.89, 0.97	Grey, grey, violet, light violet, grey, blue, violet
99	Filopin capsules	5.42	3.40	2.60	0.09, 0.27, 0.63, 0.75, 0.95	Blue, green, violet, blue, violet

Table 2: Formulations and composition of capsules - category wise*

S.No	Name	Composition of the formulation
Category 1) Musculoskeletal pain, inflammation & joint/bone health		
1	Aplex Capsule	<i>Madhu snuhi- 100mg Guduchi-100mg Rasna-75mg Sunthi-50mg Gokshura-50mg Sallaki/Boswellia-25mg Guggulu-25mg Eranda-50mg Sankha Bhasma-25mg</i>
2	Orthofit Capsule	<i>Commifera mukul (Guggulu)-100g Smilax chinensis (Madhu sunti)- 20g Boerhavia – Serata (Sallaki)-15mg Glycyrahiza glabra (Yasthimadhu) –150mg Plumbago zeylanica (Chitraka mool)-15mg Withania somnifera (Aswagandha)-10mg Triphala-10mg Vitex nirgando (Nirgundi)-10mg Sanka bhasma –50mg Calx of zinc (Yasada bhasma)-50mg Karpooora shilajit- (Godanti bhasma)-75mg Madhurbhasma-50mg Zinziber officinale (Crude)-160mg</i>
3	Osteo plus Capsule	<i>Asthi samharaka/Cissus- 200mg Caralluma attenuata-150mg Rassana-150mg</i>
4	Osteoflex Capsule	<i>Rasna ext-50mg Malla sindhura-10mg Devadaru ext-50mg Shunti ext-50mg Shigru/Moringa ext-50mg Aswagandha-50mg Punarnava –40mg Eranda moola ext-75mg Sahachara ext-50mg Bala moola-50mg Guduchi-25mg Chitra moola-10mg</i>
5	Nopoenal/Nodolar / painoff	<i>Nirgundi-100mg Sallaki-150mg Kousika-150mg Nagigandha-100mg – analgesic/anti-inflammatory</i>
6	Boswel forte Capsule	<i>Boswella serrata-97mg Balasmo dendron mukul- 94mg Glycyrrhiza glabra-97mg Alpiniagalanga-97mg Ricinus Communis –48mg Snuilax china- 48mg</i>
Category 2) Renal & urinary health/calculi & prostate		
7	Stunex Capsule	<i>Gokshura-50mg Ashana bedhi-100mg Pamarga-100mg Ashti-75mg Punarnava-50mg Ankan-25mg Arjakshara-25mg Avakshara-25mg Amrutha shilajit-50mg – likely anti-urolithiasis (“stone-ex”)</i>

8	Proste well/ Freeflow / Prostana	Gokshura-150mg Haridra-150mg Amalaki-100mg Sigru-50mg - prostrate and urinary flow
Category 3) Hemorrhoids / proctologic care		
9	Hemrid Capsule	Sigru-75mg Kulinjana-75mg Lobah-25mg Rasanjana-50mg Gairika-100mg Sphatika bhasma-25mg Trivrit-50mg Kutaja-50mg Haritaka-50mg
10	Proctapy	Kutaja-150mg Bilva-100mg Chitrak mool -50mg Haritaki -50mg Daru Haridra -50mg Haridra -50 mg Mocharas (Shalmali) -50mg
Category 4) Dermatology/skin & blood purification		
11	Scour Capsule	Khadira-100mg Manjistha -100mg Sariba-100mg Daruthaja-25mg Madhusnuhi-25mg Guduchi-25mg Sunthi-25mg Garika-50mg Kartakari-50mg- skin detox/itching
12	D.K.Sura capsules	Haritaki-100mg Amalaki-50mg Aswagandha-50mg Katukarohini-50mg Kanchonara-50mg Shatavari-75mg Guggulu-25mg Gandhak-50mg Rasamanikyaras-50mg - likely Kushta/skin-lymph support
Category 5) Diabetes management		
13	Dykure Capsule	Azadirachta indica -1g Trigonella foenum-graceum-1.20g Picohiza kurroa-0.50g Terminalia chebula-0.60g Saraca indica-0.80g Madhuca indica-0.66g coccina indica-0.60g Momordica charantia-1.20g Asphaltum puniabiurn -0.60g Abutilon indicum -0.80g Tinospora cardifolia -0.60 g Terminalia belerica -0.70g Aerva lanata-0.80g
14	Dianorm Capsule	Madhunasi/ Gymnema sylvestre -150mg Amalaki-50mg Saptarangi/Salacia-100mg Bhunimba/ Andrographis paniculata -100mg Daruharidra-100mg
15	Trigym	Emblica officinalis -48mg Gymnema sylvestre-97mg Andrographis paniculata-23mg Syzygium cumini - 48mg Strychnos potatorum -49mg Trigonella foenum-graceum-97mg Picrohiza kurroa-23mg
Category 6) Weight management/metabolic support		
16	Shape well capsules	Triphala -100mg Trikatu-50mg Sigru -50mg Vidang -100mg Aragvadha -50mg Isafgol-25mg Guggulu -250mg Vrikshamala/Garcinia -250mg Lasuna-100mg Yasthi-50mg Katukarahini-25mg Musta-25mg
Category 7) Gastrointestinal (dyspepsia, diarrhea, ulcer)		
17	Pykure Capsule	Meusa ferrea-0.08g Terminalia chebularets -0.10g Cuminum cyminum-0.05g Azadirachta indica/Neem-0.19g Saraca indica -0.12g Abutilam- 0.10g Red ochre-0.23g Aeowas-0.08g Picorrhiza kurroa-0.05g - likely GI/diarrheal & hemostatic support
18	No-con Capsule	Fermentalia chebula-183mg Cassia angustibolia-91mg Zingiber officinale-73mg Foeniculum vulgare-91mg Picrohiza kurrora-62mg - laxative/bowel regulator
19	Pylari capsules	Trikatu churnam -100mg Manjistha -150mg Loha bhasma-50mg Gandhak bhasma-100mg Tamra bhasma-50mg Vanga bhasma-50mg - likely acid-peptic/H.pyroli-targeted support
Category 8) Cardiac & cholesterol management		
20	C-4 Capsule	Arjuna (Terminalia arjuna) -200mg Punarnava (Boerhaave diffusa)-100mg Madhuyasti (Glycyrrhiza glabra) -100mg Guduchi (Tinospora cordifolia)-100mg - cardiovascular support
21	Cholestet/ Cholenil/ Cardiacare	Lasuna-150mg Guggulu-150mg Arjuna-150mg Drauha-50mg - dyslipidemia/cardiac tonic
Category 9) Immunity, adaptogens & general vitality		
22	Ayurguard	Withania sonmnifera-94mg Asparagus racemosus-94mg Mucuna pruriens -94mg Glycyrrhiza glabra-47mg Emblica officinalis -70mg Pueraria tuberosa-47mg Wardo Stachys jatamansi-22mg - adaptogenic/vitality
23	Immunoj Capsule	Tasasindura-15mg Gandhaka rasyana-15mg Swamakshika bhasma-10mg Aswagandha-40mg Jeevanthi exit-40mg Methimadhu-40mg Jejabola-40mg - immune-Rasayana

24	Immunitas/ Lewis/ Immunin	<i>Guduchi-250mg Aswagandha-100mg Dhatri/Amalaki-75mg Yastimadhu-75mg</i>
25	Navitas/ Energin/ Asilus	<i>Aswagandha-100mg Musali-100mg Kapikatchu-100mg Yastimadhu-100mg Amalaki-100mg – energy & stamina</i>
26	Delite Capsule	<i>Chlorophytum/Safed Musli-500mg – men's vitality/tonic, also general</i>
27	Vitayu Capsules	<i>Amalaki-150mg Shobanjana/Moringa-50mg Aswagandha-100mg Vidari-100mg Atibala-100mg – general wellness</i>
Category 10) Respiratory/cough & cold		
28	N-Kof Capsule	<i>Shruga bhasma-25mg Pravala bhasma-25mg Pushkara moola ext -50mg Pippali mool-25mg Yestimadhu-25mg</i>
29	Say capsule	<i>Glycyrrhiza glabra-95mg Asparagus racemosus -95mg Emblica officinalis -95mg Adhatoda vasica-95mg Coriandrum sativum -47mg Terminalia chebula -47mg Terminalia chebula -47mg – expectorant/bronchial support</i>
Category 11) Men's health/sexual wellness		
30	Etame plus/ Manumen/ Puresh Capsule	<i>Ashwagandha-100mg Yastimadhu-100mg Akarkara-30mg Vidarikand-25mg Bhumyamalaka-20mg Satavari-5mg Salam mishri-100mg Safed mushi-30mg Trikatu-5mg Vang bhasma -5mg Kant bhasma-2mg</i>
31	Delite Capsule	<i>Chlorophytum/Safed Musli-500mg – men's vitality/tonic, also general</i>
Category 12) Mental health, cognition & mood		
32	Memoir/ Epinil/ Eptavir	<i>Brahmi-150mg Mandukaparni/Centella-150mg Vacha-100mg Amalaki-50mg Sankhapushpi-50mg – memory and cognition</i>
33	Mentis/ Felix/ Happymind	<i>Brahmi-100mg Jatamamsi-100mg Vacha-100mg Jyothimathi-100mg Aswagandha-100mg – stress, anxiety, mood</i>
34	Migracare/ Capitus/ Indolenta	<i>Divya-100mg Amrutha/Guduchi-100mg Tapswin-100mg Sulabha-100mg Ashwagandha-100mg – migraine, headache support</i>
Category 13) Women's health		
35	Women Care/ Ladycare/ Gynowell	<i>Kankeli-100mg Kumari/Aloe-100mg Mangista-75mg Chinnaruha-75mg Yasthimadhu-75mg Sakastresta-75mg – gynecological tonic</i>
36	Menosafe/ Meno/ Menogard	<i>Simbi-100mg Hemapushpa-100mg Pisitha-100mg Wagigandha-100mg Mandara pushpa-100mg- menopause support</i>
Category 14) Liver & hepatobiliary (with GI support)		
37	Normohep/ Hepar/ Livgod	<i>Punarnava-100mg Bhumyalaki-100mg Kumari-100mg Ramaseneka-100mg Katukarohini/Picorrhiza-100mg</i>
38	Heptas	<i>Andrographis paniculata-89mg Phyllanthus niurri-89mg Tinospora cordipolia-89mg Aegle Marmelos-89mg Holarrhena antidysenteica- 44mg Picorrhiza kurroa-89mg Excipients- Q.S – hepato and GI support</i>

*Categorization and *Italics information* is based on the dominant/traditional actions of the listed herbs/minerals and product name cues, some formulas may be for more than one category, we placed them where they appear to have primary use.

RESULTS AND DISCUSSION

Therapeutic categorization with representative examples

Products were grouped into practical categories with 3-5 representative examples from Table 1 and 2 for clarity.

Category 1)- Musculoskeletal pain, inflammation & joint/bone health– Aples, Orthofit, Osteo plus, Osteoflex, Boswel forte, Nopoenal/Nodolar/Painoff.

Category 2)- Renal & urinary health/calculi & prostate – Stunex and Prostewell/Free flow/ Prostana.

Category 3)- Hemorrhoids / proctologic care - Hemrid Capsule and Proctapy.

Category 4) - Dermatology/skin & blood purification - Scour Capsule and D. K. Sura capsules.

Category 5)- Diabetes management- Dykure, Dianorm, Control-D, Trigym.

Category 6)- Weight management/metabolic support – Shape well capsules.

Category 7)- Gastrointestinal (dyspepsia, diarrhea, ulcer) – Pykure, No-con and Pylari capsules.

Category 8) - Cardiac & cholesterol management – C-4, Cholestat/Cholenil/Cardiacare capsules.

Category 9) - Immunity, adaptogens & general vitality - Immunitas/Lewis/Immunin, Immunoj, Ayurguard, Navitas/Energin/Asilus, Delite (Chlorophytum), Veervir, Vigor-D, Vitayu capsules.

Category 10) - Respiratory/cough & cold - N-Kof, Rhinus, Alerginil, Relax, Say capsules.

Category 11) - Men's health/sexual wellness – Etame Plus/Manumen/Puresh and Delite capsules.

Category 12) - Mental health, Neurological cognition & mood- Memoir/ Epinil/Eptavir, Mentis/Felix/Happymind, Memorind, Neurotip, Migracare/Capitus/Indolenta.

Category 13)- Women's health- Women Care/Ladycare/Gynowell, Menosafe/Meno/ Menogard, Estrup.

Category 14) - Liver & hepatobiliary (with GI support) - Normohep/Hepar/Livgod, Kamalin/ Livram/V. Liv, Heptas.

Composition trends (selected botanicals recurring across products)

Across categories, several botanicals recur frequently in label claims and proprietary blends, including *Withania somnifera* (Ashwagandha), *Tinospora cordifolia* (Guduchi), *Emblica officinalis* (Amalaki), *Commiphora mukul* (Guggul), *Glycyrrhiza glabra* (Yashtimadhu), *Tribulus terrestris* (Gokshura), *Boswellia serrata* (Sallaki), and classical poly-herb constructs such as *Triphala* and *Trikatu*. Selected marker-based TLC descriptions for these plants are summarized in Table 1.

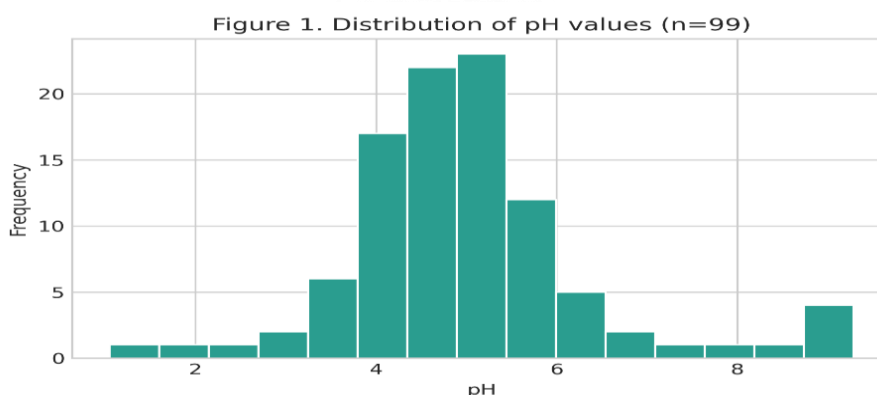
Label Transparency

Out of 99 samples analyzed, only 38 of formulations disclosed complete composition, indicating poor labelling practices and lack of regulatory compliance.

Physicochemical variability (pH, WSM, ASM)

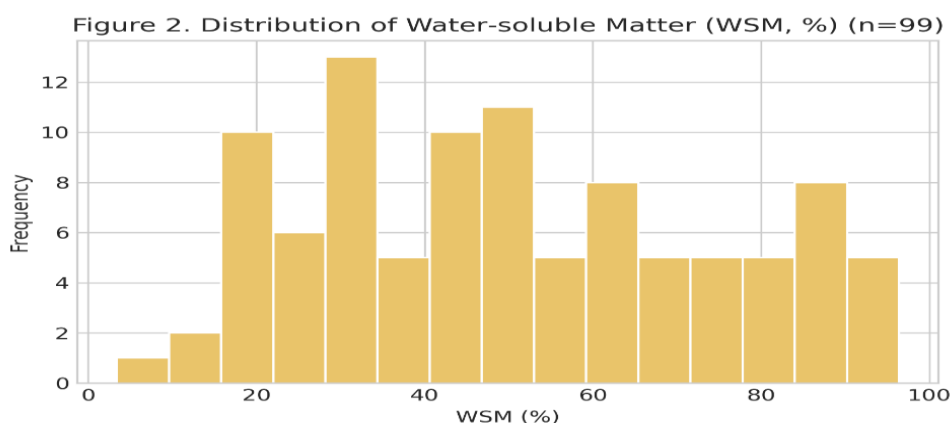
pH: 1.05 (lowest) to 9.29 (highest), mean 5.02 ± 1.38 . Slightly acidic overall majority cluster 4-6 aligning with plant-derived metabolites and digestive compatibility (Figure 1).

Figure 1: Distribution of pH Values

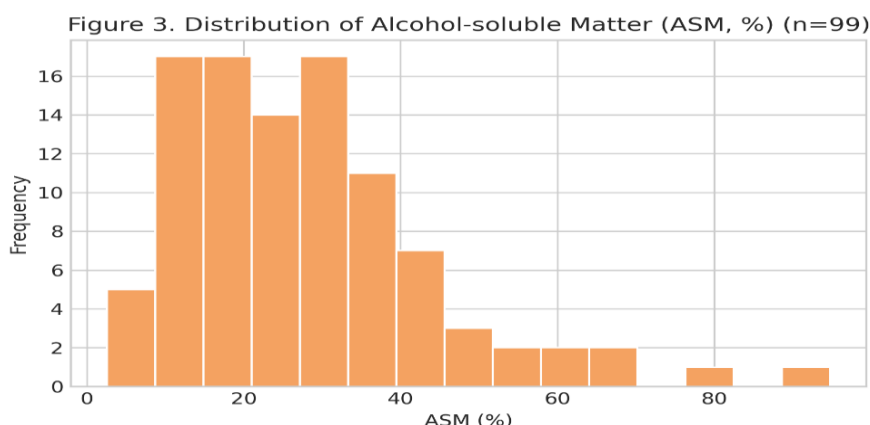


WSM: 3.4 to 96.44%, mean $50.81 \pm 23.01\%$. Indicates moderate water-soluble bio actives, high WSM suggests dominance of hydrophilic phytoconstituents like glycosides, tannins and polysaccharides (Figure 2).

Figure 2: Water Soluble Matter (WSM %)



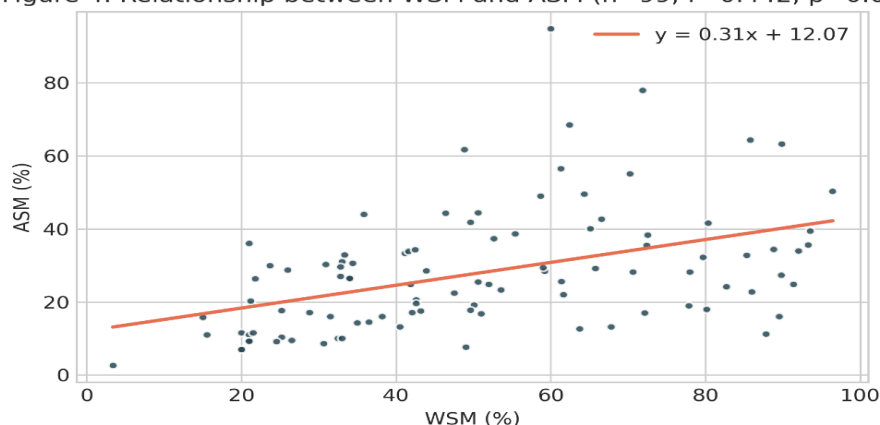
ASM: 2.6 to 94.8%, mean $28.25 \pm 16.42\%$. Reflects variability in alcohol-extractable constituents like lipophilic compounds such as alkaloids, resins and steroids (Figure 3).

Figure 3: Alcohol Soluble Matter (ASM %)

Outliers included very low pH (e.g., Vitayu) and high pH (e.g., Apex), as well as unusually low WSM/ASM (e.g., Filopin) and high ASM (e.g., Pykure). Wide variation across samples suggests, a) lack of formulation consistency and b) differences in raw material quality and non-standardized processing methods. Figure 4 shows the relationship between WSM and ASM. Correlation between WSM vs ASM gives the Pearson $r = 0.324$; $R^2 = 0.105$; p -value = 0.00113 (there is a moderate positive correlation as statistically significant p is <0.01).

Figure 4 Relationship between WSM and ASM

Figure 4. Relationship between WSM and ASM (n=99; $r=0.442$, $p=0.00$)



The physicochemical evaluation of 99 marketed herbal capsule formulations revealed considerable inter-brand variability, indicating heterogeneity in raw material quality, extraction efficiency, and formulation practices. The mean pH value, 5.02 ± 1.38 , suggests that most formulations fall within a mildly acidic to near-neutral range, which is generally acceptable for oral herbal dosage forms. However, the relatively high standard deviation reflects notable dispersion, possibly attributable to differences in herbal composition, excipient use, or processing methods.

Water-soluble matter (WSM) content demonstrated a mean value of $50.81 \pm 23.01\%$, while alcohol-soluble matter (ASM) was $28.25 \pm 16.42\%$. The wide standard deviations observed for both extractive values indicate substantial variability across marketed products. Such variability may reflect differences in plant species authenticity, extraction techniques, solvent polarity selection, and standardization protocols. From a pharmacognostic perspective, extractive values serve as indirect markers of bioactive

phytoconstituent presence; therefore, high dispersion raises concerns regarding batch-to-batch consistency and therapeutic predictability. Is the variability observed is acceptable as per the categorization, maybe another question that can also be evaluated.

Statistical correlation

All physicochemical data obtained from 99 marketed herbal capsule formulations were compiled and analyzed using statistical computation tools, including parameters like mean and standard deviation (SD) for pH, water-soluble matter (WSM), and alcohol-soluble matter (ASM) to assess the tendency and dispersion. Normality of data distribution was visually assessed using histogram plots as given above figures. Variability among samples was evaluated using boxplot analysis to detect dispersion and potential outliers. To determine the relationship between extractive values, Pearson's correlation coefficient (r) was calculated between WSM and ASM. The strength of correlation was interpreted as follows: 0.00–0.29: weak; 0.30–0.49: moderate; 0.50–0.69: strong and ≥ 0.70 : very strong.

The coefficient of determination (R^2) was computed to estimate the proportion of variance in alcohol-soluble matter explained by water-soluble matter. Statistical significance was assessed using a two-tailed test, and a p-value < 0.05 was considered statistically significant. Pearson correlation analysis revealed a moderate positive correlation between WSM and ASM ($r=0.324$), with an associated p-value of 0.00113, indicating statistical significance at the 1% level ($p<0.01$). This significant association suggests that increases in water-soluble extractives tend to accompany increases in alcohol-soluble extractives, although the relationship is not very strong. The coefficient of determination ($R^2 = 0.105$) indicates that ~10.5% of the variability in alcohol-soluble matter can be explained by water-soluble extractive content. While statistically significant, this modest explanatory power suggests that additional factors- such as phytochemical diversity, solvent selectivity, processing temperature, and excipient interactions - contribute substantially to alcohol-soluble extractive variation.

Implications for Quality Control and Standardization

The observed statistical dispersion and moderate inter-parameter correlation underscore the importance of multi-parameter standardization rather than reliance on single extractive values. The statistically significant but moderate correlation between WSM and ASM also supports the pharmacognostic principle that herbal matrices contain overlapping phytochemical classes soluble across different polarity ranges. Nevertheless, the relatively low R^2 value emphasizes that solvent-specific extraction remains critical for accurate quality assessment.

Collectively, these findings highlight the need for: a) Stricter regulatory oversight of extractive value ranges; b) Standardized extraction protocols; c) Batch-level statistical validation and d) Inclusion of quantitative phytochemical markers, to ensure therapeutic reliability and reproducibility of herbal capsule formulations.

TLC Profiling Insights- Significant variation in R_f values and number of spots indicates: Differences in phytochemical composition, possible substitution or variation in ingredients and lack of standard marker-based validation. Most capsules produced multi-spot TLC fingerprints with repeated chromogenic responses (yellow, green, violet/purple) across different solvent systems, reflecting multi-herbal compositions. Multiple R_f zones per product were common, and some categories showed partially shared zones, consistent with overlapping botanical constituents. TLC Spot Distribution: Spots range: 1–10+ and higher number of spots = complex phytochemical composition, while the variation indicates lack of formulation uniformity

raising concerns about safety, efficacy and reproducibility.

Correlation with Ayurvedic Principles

The observed variability in physicochemical parameters can be interpreted through Ayurvedic concepts:

Rasa (taste) and *Guna* (properties) influence solubility:

- *Tikta* (bitter) & *Kashaya* (astringent) → higher WSM
- *Snigdha* (unctuous) → higher ASM

Virya (potency) and *Vipaka* (post-digestive effect) may relate to pH variation:

- Acidic pH aligns with *Amla* and *Katu* dominant formulations.

Ama concept:

- Poorly processed formulations may show inconsistent TLC profiles.
- Indicates incomplete digestion/metabolism at formulation level.

Proposed Standard Ranges

Based on the data, one can propose:

Parameter	Suggested Range
pH	4.0 – 7.0
Water Soluble Matter	40 – 80%
Alcohol Soluble Matter	15 – 35%
TLC Profile	3–8 characteristic spots

CONCLUSION

This study represents a systematic effort to categorize and analytically evaluate proprietary Ayurvedic capsule formulations. The substantial variability observed in physicochemical parameters and phytochemical profiles highlights the absence of standardized manufacturing and quality-control practices across the sector. By proposing indicative analytical ranges, the work establishes an initial framework that can guide the development of regulatory benchmarks and enhance consistency within Ayurvedic pharmaceuticals.

Integrating classical Ayurvedic principles with modern analytical methodologies towards evidence-based standardization and broader global acceptance for key parameters - such as pH, extractive values, and chromatographic fingerprints, it is essential to ensure product quality, safety, and therapeutic efficacy. The dataset generated through this study offers a foundational platform for future research, standardization initiatives, and policy formulation. Persistent gaps in analytical standards and incomplete labelling practices underscore the need for strengthened regulatory oversight.

Proprietary Ayurvedic capsules marketed in India exhibit broad physicochemical ranges and distinct, category-informative TLC profiles. Summarizing these findings by therapeutic group and

publishing pragmatic reference ranges provides actionable context for laboratories, formulators, and clinicians. Wider adoption of harmonized testing protocols and transparent label disclosures will enhance product comparability, reinforce patient safety, and support the continued evolution of evidence-driven Ayurvedic practice.

Acknowledgements

The authors thank Vaidya Itikala Sanjeeva Rao for permitting the use of Varun Herbals Laboratory testing data to compile and put in systematic order.

REFERENCES

1. Quality Control methods for medicinal plant materials, WHO Library Cataloging in Publication Data, Geneva, 1998. <https://iris.who.int/bitstream/handle/10665/41986/9241545100.pdf?sequence=1>
2. Analytical chemistry of Foods, C. S. James, University of Plymouth, Blackie Academic & Professional, London, 1995. DOI: 10.1007/978-1-4615-2165-5
3. Standardization of Botanicals, testing and extraction methods of medicinal herbs, Vol. 1, Dr. V. Rajpal, Eastern Publishers, G-59, Greater Kailash - 2, ND - 110048, India, 2002; Vol 2, 2005. <https://dattanibookagency.in/products/standardization-of-botanicals-vol-2-by-dr-v-rajpal>
4. Plant Drug Analysis, A TLC Atlas, 2nd Ed., Hildebert Wagner, Sabine Baldi, Germany, Springer-Verlag, Berlin Heidelberg, 1996. <https://link.springer.com/book/10.1007/978-3-642-00574-9>
5. Ayurvedic pharmacopoeia of India - All volumes, 2005. <https://ia800501.us.archive.org/34/items/AyurvedicPharmacopoeiaOfIndiaAllVolume/Ayurvedic%20Pharmacopoeia%20of%20India%20All%20Volume.pdf>
6. Handbook of Analysis and Quality control for fruit and vegetable products, 2nd Ed., S. Ranganna, Area Coordinator, CFTRI, Mysore, 1986 <https://ebin.pub/qdownload/handbook-of-analysis-and-quality-control-for-fruit-and-vegetable-products-2nbsped-9780074518519-0074518518.html>
7. Fruit and vegetable preservation – Principles and practices – 3rd Ed., R. P. Srivatsava and Sanjeev Kumar, International Book Distributing Co., Lucknow, UP, 2002. https://books.google.co.in/books/about/Fruit_and_Vegetable_Preservation.html?id=BBZcnQEACAAJ&redir_esc=y
8. Quality Control of Herbal Drugs (An approach to evaluation of Botanicals) 2003 by Dr. Pulok, K. Mukerjee Ph.D. https://www.researchgate.net/publication/285479791_Quality_Control_of_Herbal_Drugs_An_Approach_to_Evaluation_of_Botanicals
9. The Ayurvedic Formulary of India (2003) & (2005) Government of India, Ministry of Health and Family Welfare Development of Indian System of Medicine and Homeopathy (New –Delhi).
10. Physicochemical Standard for Unani Formulations (Central Council for Research in Unani Medicine). 1984. Government of India, Ministry of Health and Family Welfare Development of Indian System of Medicine and Homeopathy (New –Delhi).
11. National Formulary of Unani Medicine. Government of India, Ministry of Health and Family Welfare Development of Indian System of Medicine and Homeopathy (New –Delhi).
12. Indian Pharmacopoeia Vol II (1996) Government of India, Ministry of Health, and Family Welfare.
13. Quality Assurance parameters Ayurveda and Siddha drugs, 2005, Dr G S Lavekar, Director, Central Council for Research in drugs, Janakpuri, ND - 110058, Pearl offset Press Pvt Ltd, ND - 110015
14. Henneberg W & Stohmann F (1860) Beiträge zur Begründung einer rationellen Fütterung der Wiederkäuer, vol. 1. Braunschweig, Germany. and Barry V. McCleary, Dietary fibre analysis, Proceedings of the Nutrition Society (2003), 62, 3–9 DOI:10.1079/PNS2002204

Cite this article as:

Swarnabala Ganti, Salma Farheen, Anahita Bharadwaj, Sanjeeva Rao Itikala. Therapeutic Categorization and Physicochemical Profiling of Proprietary Ayurvedic Herbal Capsules Marketed in India. International Journal of Ayurveda and Pharma Research. 2026;14(5):77-87.

<https://doi.org/10.47070/ijapr.v14i5.4162>

Source of support: Nil, Conflict of interest: None Declared

*Address for correspondence

Dr. Swarnabala Ganti

Swaram Biochem,
Secunderabad.

Email: swarnabalaganti@gmail.com
anahita.b02@gmail.com

Disclaimer: IJAPR is solely owned by Mahadev Publications - dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJAPR cannot accept any responsibility or liability for the articles content which are published. The views expressed in articles by our contributing authors are not necessarily those of IJAPR editor or editorial board members.