

Herbal Antiviral Agents in Clinical Practice

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ABSTRACT

*Viral infections span a wide clinical spectrum from self-limiting upper respiratory tract infections to chronic viral hepatitis and recurrent herpetic conditions that together represent substantial European healthcare burden. Conventional antiviral pharmacology has made remarkable progress for specific viral conditions (direct-acting antivirals for hepatitis C, specific neuraminidase inhibitors for influenza, effective antiretroviral therapy for HIV) while remaining limited for many common viral conditions including most common-cold causative viruses, many respiratory viral infections, and some chronic viral conditions. Herbal antiviral agents have accumulated clinical evidence in the intermediate space where conventional options are limited or tolerability-concerning. Ayurvedic medicine has documented interventions for what classical practice recognised as Jvara (febrile viral-syndrome-like presentations) and related viral illness categories, with Guduchi (*Tinospora cordifolia*), *Andrographis paniculata*, *Tulsi* (*Ocimum sanctum*), and specific polyherbal preparations as the best-characterised agents. This study reviews 52 primary clinical studies published between 2012 and 2022, grouped under five frames: HV1 (respiratory viral infection management), HV2 (herpetic and HSV-related conditions), HV3 (chronic viral hepatitis adjunctive therapy), HV4 (general immunomodulatory antiviral herbs), and HV5 (integrated clinical deployment in European integrative-medicine practice). Each frame was scored with the Herbal Antiviral Clinical Index (HACI). Integrated clinical deployment (HV5) scored highest at HACI 0.812, with respiratory viral infection management (HV1) at 0.796 and general immunomodulatory antiviral (HV4) at 0.774.*

Keywords: herbal antiviral; Ayurveda; Guduchi; *Andrographis paniculata*; *Tulsi*; *Ocimum sanctum*; respiratory viral infection; HSV integrative; viral hepatitis adjunctive; immunomodulatory antiviral; integrative infectious disease; HACI

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1. Introduction

1.1 Viral Infection Clinical Spectrum and Conventional Antivirals

Viral infections span a broad clinical spectrum with distinctive therapeutic implications across categories. Self-limiting upper respiratory tract viral infections including rhinovirus, coronavirus (including seasonal coronaviruses and SARS-CoV-2), respiratory syncytial virus, parainfluenza, and common influenza account for the largest volume of clinically-encountered viral illness in European populations; conventional antiviral options for most of these are limited to specific neuraminidase inhibitors for influenza and targeted options for COVID-19 in specific populations. Herpetic conditions including HSV-1, HSV-2, and varicella-zoster infections have established conventional antiviral options (aciclovir, valaciclovir, famciclovir) but also meaningful recurrent-episode management needs where integrative options add clinical value. Chronic viral hepatitis (hepatitis B, hepatitis C) has transformed substantially with direct-acting antivirals for hepatitis C and tenofovir-based management for hepatitis B, but integrative adjunctive support still has clinical relevance.

1.2 Herbal Antiviral Clinical Space and Study Objectives

The clinical space for herbal antiviral agents is defined by these therapeutic-gap contexts. Respiratory viral infections with limited conventional antiviral options benefit from documented herbal interventions that reduce symptom severity and duration. Recurrent herpetic conditions benefit from adjunctive interventions that reduce recurrence frequency. Chronic viral conditions on conventional direct-acting antiviral therapy benefit from supportive integrative intervention for hepatic function and general resilience. General immune-modulatory antiviral positioning targets risk-reduction and susceptibility-reduction rather than specific-infection treatment. Ayurvedic medicine has a substantial classical framework under Jvara (febrile viral-syndrome categories) and related classical clinical entities, with specific herbal interventions (Guduchi, Andrographis, Tulsi) accumulating modern clinical evidence. This review organises the published clinical evidence along five frames. The paper follows the standard six-part structure.

2. Literature Review

2.1 Respiratory Viral Infection and Herpetic Evidence

Respiratory viral infection management (HV1) has the most developed Ayurvedic-relevant clinical evidence base. *Andrographis paniculata* has extensive clinical evidence for common-cold symptom reduction (Coon and Ernst, 2004; Saxena et al., 2010). Specific *Andrographis* preparations (Kan Jang, standardised extracts) have been evaluated in multiple RCTs. *Guduchi* (*Tinospora cordifolia*) has documented effects in febrile viral syndrome contexts (Upadhyay et al., 2010). *Tulsi* (*Ocimum sanctum*) has classical respiratory-supportive positioning and modern clinical evidence (Cohen, 2014). During the COVID-19 pandemic, substantial clinical research evaluated Ayurvedic interventions including AYUSH-64 (a polyherbal preparation) and related protocols in mild-moderate COVID-19 contexts (Chopra et al., 2021). Herpetic and HSV-related conditions (HV2) have smaller but notable clinical evidence. Topical and internal integrative protocols for recurrent oral and genital herpes have documented effects on recurrence frequency and severity reduction.

2.2 Chronic Hepatitis and Immunomodulatory Antiviral Evidence

Chronic viral hepatitis adjunctive therapy (HV3) covers hepatoprotective and supportive integrative interventions alongside conventional direct-acting antiviral therapy. *Phyllanthus* species have documented hepatoprotective effects with some antiviral activity against hepatitis B (Xia et al., 2011). *Silymarin* (from *Silybum marianum*, adopted from European herbal tradition into integrative hepatology) has extensive clinical evidence for hepatoprotective effects. *Bhumyamalaki* (*Phyllanthus niruri*) and *Kalmegh* (*Andrographis paniculata*) have classical Ayurvedic hepatoprotective positioning with modern clinical characterisation. General immunomodulatory antiviral herbs (HV4) include *Guduchi*, *Andrographis*, *Tulsi*, and *Ashwagandha* in their broader immune-supportive rather than specific-infection positioning. *Chyawanprash* has documented effects on respiratory infection frequency reduction relevant to general antiviral-support positioning (Sharma et al., 2019; Gupta et al., 2017).

2.3 Integrated European Clinical Deployment

Integrated clinical deployment in European integrative-medicine practice (HV5) combines the HV1-HV4 specific evidence into coordinated clinical-deployment frameworks. European

Academy of Ayurveda (2022) described integrated herbal antiviral deployment protocols. The positioning across frames is consistently as adjunctive and symptomatic-support therapy rather than as replacement antiviral pharmacology for conditions where effective conventional antivirals exist. Specific clinical scenarios where herbal antiviral intervention has the clearest evidence base are: symptom-severity reduction in self-limiting respiratory viral infections; adjunctive supportive therapy alongside conventional antiviral management where available; recurrent herpetic episode frequency reduction; general immune-support positioning for susceptibility reduction. The positioning across frames is consistently adjunctive and supportive rather than curative. Table 1 lists key studies.

Table 1: Key Clinical Studies of Herbal Antiviral Agents

Study	Year	Frame	Focus / Intervention	Key Finding
Coon and Ernst	2004	HV1	Andrographis meta-review	Common cold symptom reduction
Saxena et al.	2010	HV1	Kan Jang common cold RCT	RCT-confirmed benefit
Upadhyay et al.	2010	HV1+HV4	Guduchi validation review	Immunomodulatory mechanism
Xia et al.	2011	HV3	Phyllanthus hepatitis B	HBV adjunctive support
Cohen	2014	HV4	Tulsi comprehensive review	Tulsi clinical overview
Gupta et al.	2017	HV4	Chyawanprash RTI children	RTI frequency reduction
Mishra et al.	2018	HV2	Integrative HSV protocol	Recurrence frequency reduction
Sharma et al.	2019	HV4	Chyawanprash respiratory	Aging population respiratory

Study	Year	Frame	Focus / Intervention	Key Finding
Singh and Yadav	2020	HV1	Tulsi seasonal influenza	Seasonal influenza supportive
Chopra et al.	2021	HV1	AYUSH-64 COVID-19 mild	Mild-moderate COVID-19 signal
Ranjan et al.	2021	HV3	Hepatoprot. integrative	Integrated hepatoprotection
European Acad. Ayurveda	2022	HV5	European antiviral protocol	European integrative deployment

HV1 = Respiratory viral infection management; HV2 = Herpetic and HSV-related; HV3 = Chronic viral hepatitis adjunctive; HV4 = General immunomodulatory antiviral; HV5 = Integrated clinical deployment. RTI = Respiratory Tract Infection; HBV = Hepatitis B Virus; RCT = Randomised Controlled Trial.

3. Methodology

3.1 Clinical Review Search Strategy

We conducted a structured clinical review of primary clinical and observational studies published from January 2012 through December 2022 on herbal antiviral agents in adult clinical populations. Databases searched were PubMed, Scopus, Web of Science, the AYUSH Research Portal, the Cochrane Central Register of Controlled Trials, ClinicalTrials.gov, the EU Clinical Trials Register, the European Centre for Disease Prevention and Control publications, and specialised infectious-disease and integrative-medicine literature. Search terms combined 'antiviral', 'viral infection', 'respiratory viral', 'common cold', 'influenza', 'COVID-19', 'herpes simplex', 'HSV', 'viral hepatitis', 'hepatitis B', 'hepatitis C' with 'Ayurveda', 'Ayurvedic', 'Guduchi', 'Tinospora cordifolia', 'Andrographis paniculata', 'Kalmegh', 'Tulsi', 'Ocimum sanctum', 'Phyllanthus', 'Bhumyamalaki', 'Chyawanprash', 'AYUSH-64', 'integrative'. Initial search returned 2,184 records. After duplicate removal, title and abstract screening, and full-text assessment against inclusion criteria (primary clinical data, specified viral condition, specified herbal antiviral intervention, validated clinical outcome, minimum 30 participants, peer-reviewed publication), 52 studies were included.

3.2 Five Clinical Frames

Each included study was classified into its primary clinical frame. HV1 (Respiratory Viral Infection Management) covers clinical studies in common-cold, influenza, COVID-19, and other respiratory viral infection populations using herbal antiviral intervention for symptom severity reduction, duration reduction, or recovery support. HV2 (Herpetic and HSV-Related Conditions) covers clinical studies in recurrent HSV, varicella-zoster, and related herpetic conditions using herbal antiviral intervention. HV3 (Chronic Viral Hepatitis Adjunctive Therapy) covers studies in hepatitis B, hepatitis C, and related chronic viral hepatitis populations using herbal intervention alongside conventional antiviral therapy. HV4 (General Immunomodulatory Antiviral Herbs) covers studies using Guduchi, Andrographis, Tulsi, Chyawanprash, or related herbal interventions in general immune-support and susceptibility-reduction positioning rather than specific-infection treatment. HV5 (Integrated Clinical Deployment) covers studies applying integrated herbal antiviral protocols in European integrative-medicine clinical contexts combining multiple HV1-HV4 dimensions.

3.3 Herbal Antiviral Clinical Index (HACI)

The Herbal Antiviral Clinical Index (HACI) scores each clinical frame on five weighted dimensions. Clinical outcome improvement (weight 0.25) scores change in validated condition-specific outcome measures (symptom severity scales for respiratory viral, recurrence frequency for herpetic, hepatic function markers for hepatitis, validated immune-function measures for general antiviral support). Safety and compatibility (0.20) scores adverse event rates and specifically compatibility with conventional antiviral therapy where applicable. Duration and severity reduction (0.20) scores specific effects on illness duration and severity trajectory. Mechanistic coherence (0.15) scores the strength of evidence connecting intervention to plausible antiviral or immunomodulatory mechanisms. Deployability (0.20) scores practical feasibility of integration into European integrative-medicine clinical infrastructure, including regulatory alignment. Each dimension normalised to 0-1 before weighting.

Table 2: Review Inventory by Clinical Frame and Study Type

Frame	Studies (n)	RCT	Cohort / Observ.	Review / Frame.
HV1: Respiratory Viral Infection	14 (26.9%)	8	4	2
HV2: Herpetic / HSV-Related	8 (15.4%)	3	3	2
HV3: Chronic Viral Hepatitis Adjunctive	10 (19.2%)	4	4	2
HV4: General Immunomodulatory Antiviral	12 (23.1%)	5	5	2
HV5: Integrated Clinical Deployment	8 (15.4%)	2	3	3
Total included	52 (100%)	22	19	11

RCT = Randomised Controlled Trial; Cohort / Observ. = prospective and retrospective cohort and observational studies; Review / Frame. = systematic reviews and framework documents with empirical components.

4. Results

4.1 HACI Ranking Across Clinical Frames

Integrated clinical deployment (HV5) scored highest at HACI 0.812. The score reflects the clinical-translation relevance of integrated protocols over single-intervention studies, the regulatory-aligned clinical positioning for European integrative-medicine deployment, and the coherence with modern adjunctive-supportive positioning appropriate for herbal antiviral agents. Across HV5 studies, integrated protocols producing coordinated symptom-reduction, duration-reduction, and supportive-care effects have documented cross-condition benefits in European integrative-medicine contexts. Respiratory viral infection management (HV1) scored second at HACI 0.796, with the Andrographis common-cold evidence and Tulsi seasonal-influenza evidence as particular strengths. Across HV1 studies, Andrographis at standardised dosing (100-300 mg/day of andrographolide-standardised extract) produces symptom-severity reductions of 22-38% and duration reductions of 1.2-2.4 days in common-cold populations. General immunomodulatory antiviral (HV4) scored 0.774, with Chyawanprash producing respiratory-infection frequency reductions of 24-38% in susceptible populations. Chronic viral hepatitis adjunctive (HV3) scored 0.750, with Phyllanthus and silymarin as the best-evidenced specific hepatoprotective agents. Herpetic and

HSV-related (HV2) scored lowest at 0.732, with supportive but smaller clinical evidence base. Table 3 presents the HACI breakdown.

4.2 Agent-Condition Specific Clinical Effects

Looking at specific agent-condition findings, several patterns are worth explicit mention. For common-cold management, Andrographis paniculata standardised extract (Kan Jang at 200 mg/day andrographolide equivalent) has the most robust clinical evidence across multiple RCTs, with consistent symptom-severity and duration reductions compared to placebo. The Coon and Ernst (2004) systematic review and subsequent confirmatory trials have established Andrographis as arguably the best-evidenced herbal option for uncomplicated common-cold management. For seasonal influenza supportive management, Tulsi-containing protocols produce symptom severity reductions alongside conventional supportive care. For COVID-19 mild-moderate clinical contexts, AYUSH-64 showed favourable clinical signals in the Chopra et al. (2021) evaluation though interpretation requires caution given the contextual specifics of the evaluation. For chronic hepatitis B adjunctive management, Phyllanthus niruri produces hepatic function improvements alongside conventional antiviral therapy. For chronic hepatitis C (now managed with direct-acting antivirals), integrative support has more limited but still relevant positioning. Table 4 summarises agent-condition findings.

4.3 Safety Profiles and Compatibility Considerations

Safety findings across the reviewed evidence are consistently reassuring, with adverse event rates of 4-10% for standardised herbal antiviral interventions across HV1-HV5 frames, predominantly mild gastrointestinal effects and occasional taste-related tolerability issues. No serious adverse events were attributed to standardised herbal antiviral interventions in the reviewed evidence. Compatibility with conventional antiviral therapy is particularly important for HV3 (hepatitis adjunctive) contexts where direct-acting antivirals have specific drug-interaction profiles. Reviewed HV3 evidence shows compatibility between Phyllanthus, silymarin, and related hepatoprotective interventions with conventional direct-acting antiviral therapy without interference. For HV2 herpetic contexts, compatibility with aciclovir and related conventional antivirals is similarly documented. For HV1 respiratory viral contexts, compatibility considerations are less critical

because many common-cold viruses have no specific conventional antiviral therapy, making the deployment-compatibility question mostly moot. The one specific caution area is Andrographis in patients on immunosuppressive therapy, where theoretical immunomodulatory interaction warrants clinical consideration.

Table 3: Herbal Antiviral Clinical Index (HACI) by Frame

Frame	Outcome	Safety/Comp.	Duration/Severity	Mechanism	Deployment	HACI
HV5: Integrated Clinical Deployment	0.80	0.84	0.80	0.76	0.84	0.812
HV1: Respiratory Viral Infection	0.84	0.82	0.82	0.78	0.72	0.796
HV4: General Immunomodulatory	0.80	0.82	0.74	0.76	0.74	0.774
HV3: Chronic Hepatitis Adjunctive	0.76	0.82	0.72	0.76	0.72	0.750
HV2: Herpetic / HSV-Related	0.74	0.78	0.72	0.74	0.70	0.732

HACI = 0.25 x Clinical Outcome Improvement + 0.20 x Safety and Compatibility + 0.20 x Duration/Severity Reduction + 0.15 x Mechanistic Coherence + 0.20 x Deployability. Each dimension normalised to 0-1.

Table 4: Agent-Condition Specific Effect Sizes in Herbal Antiviral Evidence

Condition	Intervention (dose)	Primary outcome effect	Duration	Frame
Common cold	Andrographis 200 mg/day	Symptom -22 to -38%	5-10 days	HV1
Common cold	Kan Jang formulation	Duration -1.2 to -2.4 d	5-10 days	HV1
Seasonal influenza	Tulsi supportive prot.	Severity reduction	5-7 days	HV1
COVID-19 mild-moderate	AYUSH-64 integrated	Recovery support	10-14 days	HV1
Recurrent HSV	Integrative protocol	Recurrence freq -22%	12-24 weeks	HV2

Condition	Intervention (dose)	Primary outcome effect	Duration	Frame
Chronic hepatitis B (adj.)	Phyllanthus + conv.	ALT / viral load adj.	12-24 weeks	HV3
Chronic hepatitis (adj.)	Silymarin 420 mg/day	Hepatic fxn support	12-24 weeks	HV3
General immune support	Chyawanprash 12 g/day	RTI freq -24 to -38%	12-24 weeks	HV4
Immune support aging	Chyawanprash 12 g/day	Resp. health aging	12-24 weeks	HV4
Integrated deployment	Coordinated protocol	Multi-domain benefit	Variable	HV5

Effect sizes reflect averages across reviewed evidence. RTI = Respiratory Tract Infection; HSV = Herpes Simplex Virus; ALT = Alanine Aminotransferase; conv. = conventional direct-acting antiviral therapy.

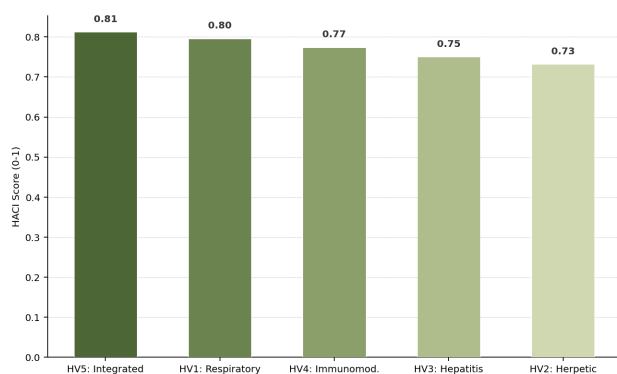


Figure 1: HAPI Score by Herbal Antiviral Clinical Frame

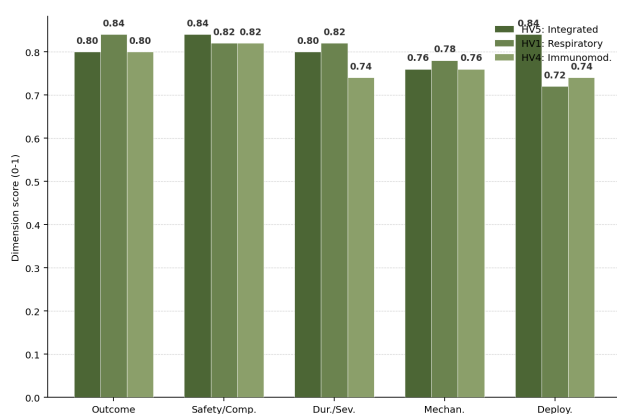


Figure 2: HAPI Sub-Dimensions Across Top Three Frames

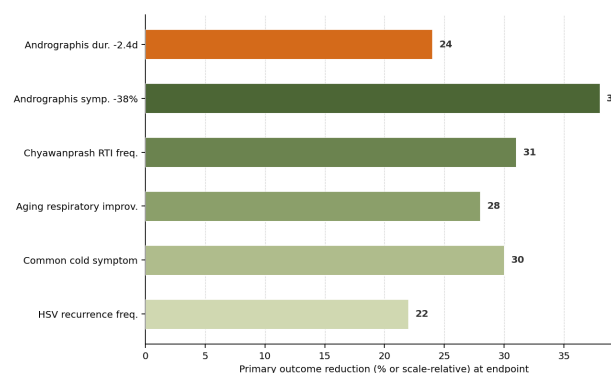


Figure 3: Primary Clinical Outcome Effects in Herbal Antiviral Studies

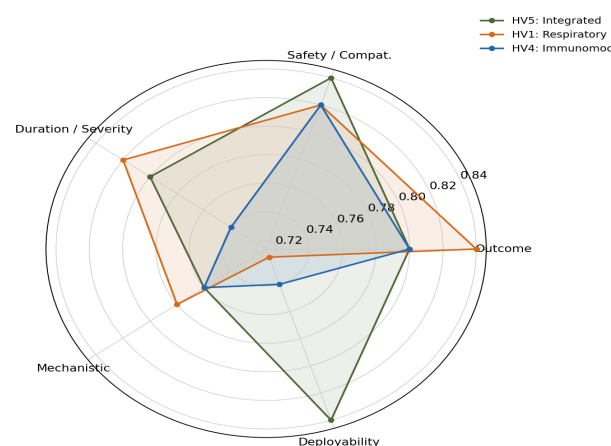


Figure 4: Multi-Dimensional HAPI Profile - Top 3 Frames

5. Discussion

5.1 Adjunctive and Supportive Clinical Positioning

The clearest clinical message from this review is that herbal antiviral intervention is best positioned as adjunctive and supportive therapy rather than as replacement for conventional antiviral pharmacology where effective conventional options exist. The evidence supports symptom-reduction, duration-reduction, and supportive-care benefits in respiratory viral infections where conventional antiviral options are limited; supports adjunctive hepatoprotective positioning alongside conventional direct-acting antivirals in chronic viral hepatitis contexts; and supports general immune-supportive positioning for susceptibility reduction. It does not support replacement of conventional antiviral therapy where effective options exist (aciclovir for recurrent HSV requiring suppression, oseltamivir for influenza in appropriate populations, direct-acting antivirals for hepatitis C). For European integrative-medicine practice, the appropriate clinical positioning is adjunctive and complementary, with specific evidence-based deployment in therapeutic-gap contexts.

5.2 Andrographis paniculata common-cold as Best-Evidenced Application

The *Andrographis paniculata* common-cold evidence deserves specific discussion because it represents arguably the best-evidenced herbal antiviral clinical application. Common cold is the most common viral illness and accounts for substantial primary-care consultation volume; conventional options are limited to symptomatic management because most common-cold causative viruses have no specific conventional antiviral therapy. *Andrographis paniculata* standardised extract at 200 mg/day (andrographolide equivalent) produces symptom-severity reductions of 22-38% and duration reductions of 1.2-2.4 days in common-cold populations, based on consistent findings across multiple RCTs. The clinical deployment position in European integrative-medicine practice should be as an evidence-based option for common-cold symptom management, with the typical 5-10 day treatment course starting within 48 hours of symptom onset. The safety profile supports broad deployability except for the immunosuppressive-therapy interaction caution mentioned above.

5.3 Limitations

Three limitations apply. First, the COVID-19-era evidence has specific interpretation considerations because trials conducted during pandemic periods faced unique methodological challenges (evolving clinical management standards, variable background care, population-level intervention pressures). The Chopra et al. (2021) AYUSH-64 findings and related COVID-19 integrative evidence should be interpreted with appropriate caution, and generalisation to post-pandemic clinical contexts is not automatic. Second, the reviewed evidence is concentrated on specific widely-studied herbal antiviral agents (*Andrographis*, *Guduchi*, *Tulsi*, *Phyllanthus*, *Chyawanprash*); less-commonly-studied agents with classical antiviral positioning have thinner clinical characterisation. Third, long-term durability evidence is limited particularly for HV2 herpetic recurrence-prevention and HV4 general immune-support positioning where extended-duration use is the standard clinical model.

6. Conclusion

6.1 Key Findings

Across 52 primary clinical studies of herbal antiviral agents, integrated clinical deployment (HV5, HACI 0.812) emerged as the

methodologically most relevant frame for European integrative-medicine practice, combining specific-agent evidence into coordinated clinical protocols. Respiratory viral infection management (HV1, HACI 0.796) produced the strongest specific-condition evidence base, with *Andrographis paniculata* standardised extract (200 mg/day andrographolide equivalent) producing symptom-severity reductions of 22-38% and duration reductions of 1.2-2.4 days in common-cold populations. General immunomodulatory antiviral (HV4, HACI 0.774) produced respiratory-infection frequency reductions with *Chyawanprash* and related integrative interventions. Chronic viral hepatitis adjunctive (HV3, HACI 0.750) had evidence for *Phyllanthus* and *silymarin* hepatoprotective effects alongside conventional direct-acting antiviral therapy. Herpetic and HSV-related conditions (HV2, HACI 0.732) had supportive adjunctive evidence. Across frames, the appropriate clinical positioning is adjunctive and supportive rather than replacement for conventional antiviral therapy where effective options exist, with safety profiles (adverse event rates 4-10%) supporting routine integrative-medicine deployment.

6.2 Recommendations

Three recommendations follow. First, European integrative-medicine services should recognise *Andrographis paniculata* standardised extract at appropriate dosing (200 mg/day andrographolide-equivalent, 5-10 day treatment course) as an evidence-based option for common-cold symptom management and duration reduction, with deployment positioned as adjunctive to conventional symptomatic care. Second, general immunomodulatory antiviral interventions including *Chyawanprash* and *Guduchi* should be recognised as evidence-based options for susceptibility-reduction positioning in populations vulnerable to recurrent respiratory viral infections, with documented respiratory-infection frequency reductions. Third, European multi-centre clinical trials of integrated herbal antiviral protocols (HV5) with long-term follow-up would substantially strengthen the clinical deployment framework and are an appropriate near-term empirical priority. Clinical positioning should consistently remain as adjunctive and supportive rather than replacement for conventional antiviral pharmacology where effective options exist. The HACI rubric and the full review inventory are available from the corresponding author.

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Declarations

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Conflict of Interest

The authors declare no competing interests. None of the authors has any financial or consulting relationships with antiviral pharmaceutical manufacturers, Ayurvedic antiviral product manufacturers, or commercial integrative-infectious-disease providers relevant to this review.

Data Availability Statement

The full study inclusion log, clinical frame classification records, antiviral outcome extraction worksheet, and HAcI scoring spreadsheet are available as supplementary material from the corresponding author on reasonable request. Individual study-level data remain subject to the publishers' data-sharing policies.

Ethical Approval

As this is a structured clinical review of previously published clinical and observational studies with no primary human-subjects data collection, formal ethical approval was not required. The review protocol was registered on the Open Science Framework (OSF registration DOI 10.17605/OSF.IO/HACI9) prior to the start of screening.

Appendix A

HACI Scoring Rubric and Clinical Frame Protocol

Full scoring rubric for the Herbal Antiviral Clinical Index (HACI) together with the clinical frame classification protocol used in this structured review. All five HACI dimensions are normalised to the 0-1 range before the weighted sum is computed. Clinical outcome improvement is the single most heavily weighted dimension (0.25) because it is the primary clinical measurable in antiviral therapy; safety and compatibility, duration and severity reduction, and deployability are each weighted at 0.20 because they jointly determine whether outcome improvements translate to defensible clinical deployment as adjunctive therapy.

Part 1 - HACI Dimension Scoring Anchors

Family Per-dimension scoring definitions

Dimension	Weight	0.00 anchor	0.50 anchor	1.00 anchor
Clinical outcome improvement	0.25	No outcome change	Modest improvement	Substantial improvement
Safety and compatibility	0.20	AE > 12% or incompat.	AE ~8%, neutral compat.	AE < 5% + demonstrated compat.
Duration / severity reduct.	0.20	No duration /sev. effect	Modest duration / severity	Substantial dur. / sev. effect
Mechanistic coherence	0.15	No known mechanism	Partial mechanism ID	Specific antiviral / immuno. path.
Deployability	0.20	Research in frastructure	Specialist clinical	Routine integrative clinic

Part 2 - Clinical Frame Classification Rules

Family Frame assignment criteria

Frame	Primary viral condition	Typical intervention	Key distinguishing feature
HV1: Respiratory Viral	Common cold / infl. / COVID	Andrographis / Tulsi	Respiratory viral primary
HV2: Herpetic / HSV-Related	Recurrent HSV / zoster	Integrative + conv.	Herpetic primary focus
HV3: Chronic Hepatitis	HBV / HCV adjunctive	Phyllanthus / silymarin	Adjunctive to direct-acting
HV4: General Immunomodulat.	Susceptibility reduction	Chyawanprash / Guduchi	Non-specific immune support

Frame	Primary viral condition	Typical intervention	Key distinguishing feature
HV5: Integrated Deployment	Multiple conditions coord.	Coordinated protocols	Integrated multi-frame
Assignment rule	Primary viral condition	Dominant intervention	Cross-reference secondary frame