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Comprehensive review on efficacy and safety evaluation of laxatives of traditional medicinal plants of India

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Ayurveda, uses a holistic approach to cure any disorder, among which constipation is one entity. The entity, such as constipation or any gut disorder associated with the constipated bowel, should be treated with laxatives. Herbal laxatives are considered the best option, as they have the least prolonged or unwanted complications. Ayurveda houses multiple drugs that are indicated specifically as needed. This study aims to group drugs derived under one umbrella from different classes, such as *Charaka*, *Sushruta* and *Bhav Prakash*, and is supported by scientific evidence from *in vivo* studies or clinical trials available from various resources. Herbal laxatives have a defined potential clinically but need more scientific evidence for validation and to be set as standards.

Keywords: Ayurveda, Herbals, *Haritaki*, Laxatives

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Ayurveda is a treasure of plants with medicinal value. As per Ayurveda, every species present on earth is considered a medicine[1]. Laxatives are mentioned with various terminologies in Ayurveda, such as *Virechaka*, *Mala Bhedana*, and *Vibandhanasakaha*, which are used to manage constipation. As reported in previous studies, a 12-19% global prevalence has been reported in healthy and diseased individuals[2]. Its relatively high prevalence, financial burden, dependency on drugs and complications make it a major health issue[3]. Constipation is mostly treated empirically with lifestyle measures such as the intake of a fibrous diet, high fluid intake, regular exercise, avoidance of stress and other factors. Individuals who do not respond to lifestyle changes are supported with suitable laxatives. Multiple laxatives are available, such as polycarbophill and methylcellulose (bulk-forming agents), bisacodyl, sodium picosulfacte, and docusate (stimulants and stool softeners), and magnesium salts, lactulose, sorbitol, phosphate salts and glycerin suppositories (osmotic agents); selection depends on the severity, prognosis, and causative factors[4]. The surgical approach is very limited, and major complications are often avoided[5].

In the Ayurvedic framework, constipation is considered not simply as infrequent bowel evacuation, but as a functional disturbance arising from diminished digestive and metabolic capacity (*Agni*) along with dysregulation of *Vata*, particularly in the *Pakvashaya*. Management is therefore individualized and multidimensional, aiming to restore digestive efficiency, normalize bowel motility, and correct underlying dietary and lifestyle contributors. Therapeutic measures such as *Anulomana* (facilitating downward movement), *Mridu Virechana* (mild purgation), appropriate *Ahara* modifications, and behavioral regulation are selected according to the patient's *Prakriti*, *Koshta*, and *Agni* status.

Classical Ayurvedic literature describes a wide range of plant-based formulations and single drugs for bowel regulation. However, to ensure broader clinical acceptance and reproducibility within contemporary healthcare systems, these interventions require rigorous pharmacological evaluation, well-designed clinical trials, and proper standardization of raw materials and formulations. Such integration of traditional knowledge with systematic scientific inquiry can strengthen their evidence-based relevance without compromising foundational Ayurvedic principles.

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The current review aims to compile the natural/herbal laxatives mentioned in Ayurveda with their available clinical context, with a focus on their efficacy, safety, toxicity, and utility. Conclusive integration of these remedies may add up into mainstream health practices to yield better outcomes for individuals[6].

Laxatives in Ayurveda

The use of laxatives is not limited to curing constipation; rather, laxatives are used to meet the below-listed targets.

1. Bowel preparations before conducting surgeries[7],
2. As a medication to treat skin disease in Ayurveda,
3. Used as a drug in *Virechana* (An inclusive procedure of *Panchakarma*)
4. To enhance intestinal/bowel mobility[8]
5. To eliminate toxin loads from the body

Keeping this view above, it is essential to assess the dose, toxicity effect, and hydration conditions prior to the selection of laxatives[9]. In Ayurveda, a drug is decided after the assessment of several parameter like *Bala, Prakriti, Vikruti, Desha, Kala, Agni, Kostha, Mala, Mutra, Nadi* etc. as per Ayurveda Classics. Reference in Ayurveda for the application of laxatives with their terminology and classical references are described in (Table 1).

Name of different drugs/medicinal plants are mentioned below from (Table 2-5) provided with their Latin name as per "The World Flora Online" (http://www.worldfloraonline.org) as accessed on 16th Feb 2026.

As per *Acharya Charaka* a group of drugs used to evacuate the bowel, termed *Bhedaniya Mahakashaya*, lists ten drugs, as mentioned in (Table 2).

Similarly, *Acharya Sushruta* mentioned a group of drugs with similar impacts or similar *Karma* values are included in one group/*Gana*. *Shyamaadi Gana* is having drugs with *Vidabhedi*[15] *Karma*. A total of 19 drugs have been mentioned by *Acharya Sushruta*, of which 5 drugs (*Nishotha, Lal Nishotha, Danti, Shankhini, and Swarnakshiri*) are similar as *Acharya Charaka's Bhedaniya Mahakashaya*, and the remaining 14 are listed in (Table 3).

In addition to *Shyamaadi, Gana Acharya Sushruta* mentioned several drugs for *Virechana/ Adhobhagahar Aushadha*[16]. These drugs, such as *Nisotha, Mahashyama/Vidhara, Lal Nisotha, Danti,*

Table 1 — Terminology to herbal laxatives in Ayurveda

S.N.	Term	Definition	Reference
1.	*Saaraka*	Drugs which liquifies the stool and tend them to expel	*Bhav Prakash Haritakyadi Varga/225*
2.	*Virechaka*	Drugs which cause purgation	*Bhav Prakash Shaakvarga Varga/58*
3.	*Vidabhedaka*	Drugs which break the stool into smaller forms	*Ashtanga Hridya Kalpasiddhi Sthan 4/25*
4.	*Vibnadhanashanam*	Drugs which have a direct action of laxation	*Bhav Prakash Sandhanvarga Varga/58*
5.	*Bhedaniya*	Drugs which bring the stool toward rectum for elimination in bounded or nonbounded from e.g. –*Kutaki*	*Sharangdhar Samhita Poorva Khanda 4/6*[10]
6.	*Rechaka*	Drugs which bring the stool toward rectum for elimination in liquefied phase e.g. –*Trivritta*	*Sharangdhar Samhita Poorva Khanda 4/7*[11]
7.	*Anulomana*	Drugs which formulate the waste product, make them loose from bowel loops and promote to move downward making it easier to eliminate e.g.- *Haritaki*	*Sharangdhar Samhita Poorva Khanda 4/4*[12]
8.	*Stransana*	Elimination of Formulated or non- formulated extracta e.g.- *Kritamala/Aargavada*	*Sharangdhar Samhita Poorva Khanda 4/5*[13]

Table 2 — *Bhedaniya Mahakashaya*[14] (*Charaka Samhita Sutra Sthana Adhyaya 4*)

S.N.	Drug name (*Sanskrit/Ayurveda*)	Scientific name	Family
1.	*Suhava/Nishotha*	*Operculina turpethum* (Lin.) Silva Manso	*Convolvulaceae*
2.	*Arka/Madaar*	*Calotropis gigantea* (Lin.) Dryand.	*Apocynaceae*
3.	*Urubuk/Eranda*	*Ricinus communis* Lin.	*Euphorbiaceae*
4.	*Agnimukhi/Langali*	*Gloriosa superba* Lin.	*Colchicaceae*
5.	*Chitra/Danti*	*Baliospermum montanum* Müll. Arg.	*Euphorbiaceae*
6.	*Chitraka*	*Plumbago zeylanica* Lin.	*Plumbaginaceae*
7.	*Chirbilva*	*Holoptelea integrifolia* (Roxb.) Planch.	*Ulmaceae*
8.	*Shankhini*	*Solanum indicum* Roxb.	*Solanaceae*
9.	*Shakuladani/Katuka*	*Picrorhiza kurroa* Royle ex Benth.	*Plantaginaceae*
10.	*Swarnakshiri*	*Argemone Mexicana* Lin.	*Papaveraceae*

Shankhini, Lodhra, Kabila, Ramyaka, Lata Karanja, Putrashreni/Dantibheda, Karmuka, Guduchi, Indrayana, Apamarga, Putikaranja, Vridhdaruka, Snuhi, Swarnakshiri, and Saatala, are also included in Shyamaadi Gana, and the remaining drugs are listed in (Table 4).

Acharya Bhavaprakasha in *Madhyama Khanda* of *Bhav Prakasha*, mentioned drugs with the *Karma* of purgation or with action of luxation are listed in (Table 5).

Rationale for the review of the applicability of herbal laxatives

Alternative/complementary systems of medication have gained wide popularity in managing entity constipation. Owing to the lack of scientific studies, a wide gap in the standard applicability of herbal drugs remains. Yet studies are available on AYUSH Research Portal, most of studies have small sample size, heterogenous outcomes, lack of uniformity in sample size, doses and methodology. Hence, a comprehensive review of the available literature and its efficacy in clinical practice is needed. Other reasons are specified below:

Diversity in formulations and usability

Ayurveda holds many herbal laxatives in the literature and in clinical practice. Variation in dose, form used, parts used or ingredients used make efficacy analysis and standard setting more complex.

Least evidence-based approach

In clinical practice, efficacy is noted to be satisfactory; however, documentation of that efficacy is lacking owing to the monotonous approach from clinicians, the lack of sharing of knowledge, and the lack of progressive vision toward advancements.

Least scientific approach

Ayurveda practitioners generally manage entities with classical knowledge, experience and skill, but the use of scientific methods is not acceptable because of differences in streams, and the measurement parameters of Science and *Shastra* are far apart.

Table 3 — *Shyamaadi Gana* (*Sushruta Samhita Sutra Sthana Adhyaya 38*)

S.N.	Drug name (*Sanskrit/ Ayurveda*)	Scientific name	Family
1.	*Mahashyama/Vidhara*	*Ficus glomerata*	*Moraceae*
2.	*Tilvaka/Lodhra*	*Symplocos racemosa* C.B.Clarke	*Symplocaceae*
3.	*Kabila*	*Mallotus philippensis* (Lam.) Müll. Arg	*Euphorbiace*
4.	*Ramyaka/Bakayana/patolamoola*	*Stereospermum suaveolens* (Roxb.) DC	*Bignoniaceae*
5.	*Karmuka*	*Areca catechu* Lin.	*Arecaceae*
6.	*Putrashreni/Dantibheda*	*Dendrobium macraei* Lindl.	*Orchidaceae*
7.	*Gavakshi/Indrayana*	*Citrullus colocynthis* (Lin.) Schrad.	*Cucurbitaceae*
8.	*Apamarga*	*Achyranthes aspera* Lin.	*Amaranthaceae*
9.	*Lata Karanja*	*Pongamia pinnata* (Lin.) Merr.	*Fabaceae*
10.	*Putikaranja*	*Caesalpinia bonduc* (Lin.) Roxb.	*Fabaceae*
11.	*Guduchi*	*Tinospora cordifolia* (Willd.) Hook. f. & Thomas	*Menispermaceae*
12.	*Saatala*	*Euphorbia tirucalli* Lin.	*Euphorbiaceae*
13.	*Chhagalantri/Vridhdaruka*	*Argyreia nervosa* (Burm.f.) Bojer	*Convolvulaceae*
14.	*Snuhi*	*Euphorbia neriifolia* Roxb.	*Euphorbiaceae*

Table 4 — *Adhobhaghar Aushadha* (*Sushruta Samhita Sutra Sthana 39*: *Samshodhana Samshamana Adhayaya*)

S.N.	Drug Name (*Sanskrit/ Ayurveda*)	Scientific name	Family
1.	*Dravanati*	*Croton tiglium* L.	*Euphorbiaceae*
2.	*Saptala*	*Euphorbia lutescens* C.A.Mey.	*Euphorbiaceae*
3.	*Vishanika*	*Aconitum ferox* Wall.	*Ranunculaceae*
4.	*Chitraka*	*Plumbago zeylanica* L.	*Plumbaginaceae*
5.	*Kusha*	*Desmostachya bipinnata* (L.) Stapf	*Poaceae*
6.	*Kaasha*	*Saccharum spontaneum* L.	*Poaceae*
7.	*Paatala*	*Stereospermum suaveolens* (Roxb.) DC.	*Bignoniaceae*
8.	*Haritaki*	*Terminalia chebula* Retz.	*Combretaceae*
9.	*Amalaki*	*Emblica officinalis* Gaertn/Phyllanthus emblica L.	*Euphorbiaceae/Phyllanthaceae*
10.	*Vibhitaki*	*Terminalia bellirica* (Gaertn.) Roxb.	*Combretaceae*
11.	*Neel*	*Indigofera tinctoria* Lin.	*Fabaceace*
12.	*Eranda*	*Ricinus communis* Lin.	*Euphorbiaceae*
13.	*Saptaparna*	*Alstonia scholaris* (Lin.) R.Br.	*Apocynaceae*
14.	*Arka*	*Calotropis gigantea* (Lin.) Dryand.	*Apocynaceae*
15.	*Jyotishmati/Maalkangani*	*Celastrus paniculatus* Willd.	*Celastraceae*

Clinicians prefer to use drugs as mentioned in classics, and the whole raw form of drugs is used rather than active ingredients. This gap is an outcome of individual assessment and treatment paradigm in Ayurveda. Ayurveda emphasis on individual assessment based on *Prakriti*, *Koshtha*, *Agni*, Bala etc which creates an inter-individual variability in drug selection and response which occurs due to genetic polymorphism, gut microbiota variation, difference in metabolic and pharmacokinetic rates. It occurs as fact that Ayurveda drugs have holistic pharmacodynamics and synergistic phytochemical action. This gap can be addressed by conducting stratified clinical trials, phytochemical profiling of drugs an integration of reverse pharmacology and system biology approaches.

Patients' preferences

In India, self-medication is a major concern, and the non-harming effects of Ayurveda drugs make it more difficult to assess their actual efficacy. For example, *Isabgol and Haritaki* are used as home remedies to cure constipation. This approach creates many gaps in terms of actual reported efficacy.

Adverse effects and drug safety

Like other therapeutic agents, herbal laxatives may also carry toxicity or adverse effects if used in inappropriate dose, form or patient context as toxicity is reported in several drugs like *Aregemone mexicana* (*Swarnakshiri*), *Croton tiglilum* (*Jayaphala*), *Aconitum ferox* (*Vatsanabha*) which have potent alkaloids, diterpenes and phorbol esters which may cause gastrointestinal irritation, hepatotoxicity, cardiotoxicity if administered in excessive dose. Discussion of toxicity is discussed in Safety profile and potential side effects section. Ayurveda combat these concerns through established principles like *Sodhana* (detoxification/purification), *Maarana* (incineration), process along with, *Rog-Rogi Pariksha* (Disease-patient examination), *Prakriti*, *Aushada Matra* (drug dose) etc. Their scientific study is needed for their universal acceptance and inclusion as part of clinical practice.

A comprehensive review is crucial for assessing the efficacy of herbal laxatives to better understand the gap between classical knowledge and evidence-based scientific studies. To fulfill the objective to compile the various laxatives mentioned in Ayurveda Literature and to assess the clinical efficacy of herbal laxatives along with the safety and toxicity profile of herbal laxatives available, current research work is done.

Methodology for reviewing herbal laxatives

Collection of data

The relevant Ayurveda literature was searched with the terms mentioned in (Table 1). The online databases included PubMed, Scopus, Science Direct, the Cochrane Library and other indexed journals; websites; and portals such as Ayush Research Portal.

Table 5 — Drugs mentioned in *Madhyama Khanda* of *Bhav Prakasha*

S.N.	Drug name (*Sanskrit*/ *Ayurveda*)	Scientific name	Family	Reference
1.	*Haritaki*	*Terminalia chebula* Retz.	*Combretaceae*	*Haritakyadi Varga/1*
2.	*Vibhitaki*	*Terminalia bellirica* (Gaertn.) Roxb.	*Combretaceae*	*Haritakyadi Varga/35*
3.	*Shunthi*	*Zingiber officinale* Roscoe	*Zingiberaceae*	*Haritakyadi Varga/44*
4.	*Aadraka*	*Zingiber officinale* Roscoe	*Zingiberaceae*	*Haritakyadi Varga/49*
5.	*Pippali*	*Piper longum* Lin.	*Piperaceae*	*Haritkyadi Varga/64*
6.	*Shatpushpa*	*Foeniculum vulgare* (C. Presl) Janch. ex Holub	*Apiaceae*	*Haritkyadi Varga/89*
7.	*Vacha*	*Acorus calamus* Lin.	*Acoraceae*	*Haritkyadi Varga/102*
8.	*Chopchini*	*Smilax china* Walter	*Smilacaceae*	*Haritkyadi Varga/107*
9.	*Vidanga*	*Embelia ribes* Burm.f.	*Primulaceae*	*Haritkyadi Varga/111*
10.	*Dikamali*	*Gardenia gummifera* Lin.f.	*Rubiaceae*	*Haritkyadi Varga/112*
11.	*Aargvadha*	*Cassia fistula* Lin.	*Fabaceae*	*Haritakyadi Varga/148*
12.	*Katuka*	*Picrorhiza kurroa* Royle ex Benth.	*Plantaginaceae*	*Haritakyadi Varga/151*
13.	*Katuparni*	*Solanum surattense* Burm.f.	*Solanaceae*	*Haritakyadi Varga/176*
14.	*Pashanabheda*	*Bergenia ciliata* Raizada	*Saxifragaceae*	*Haritakyadi Varga/184*
15.	*Lashuna*	*Allium sativum* Lin.	*Amaryllidaceae*	*Haritakyadi Varga/224*
16.	*Bhallataka*	*Semecarpus anacardium* Blanco	*Anacardiaceae*	*Haritakyadi Varga/228*
17.	*Chankamala*	*Cicer*	*Fabaceae*	*Haritakyadi Varga/251*
18.	*Devdaru*	*Cedrus deodara* (Roxb. ex D.Don) G. Don	*Pinaceae*	*Karpuraadi Varga/24*
19.	*Priyangu*	*Callicarpa macrophylla* Vahl	*Lamiaceae*	*Karpuraadi Varga/102*
20.	*Gambhari*	*Gmelina arborea* Roxb.	*Lamiaceae*	*Guduchyaadi Varga/14*
21.	*Snuhi*	*Euphorbia neriifolia* Roxb.	*Euphorbiaceae*	*Guduchyaadi Varga/73*

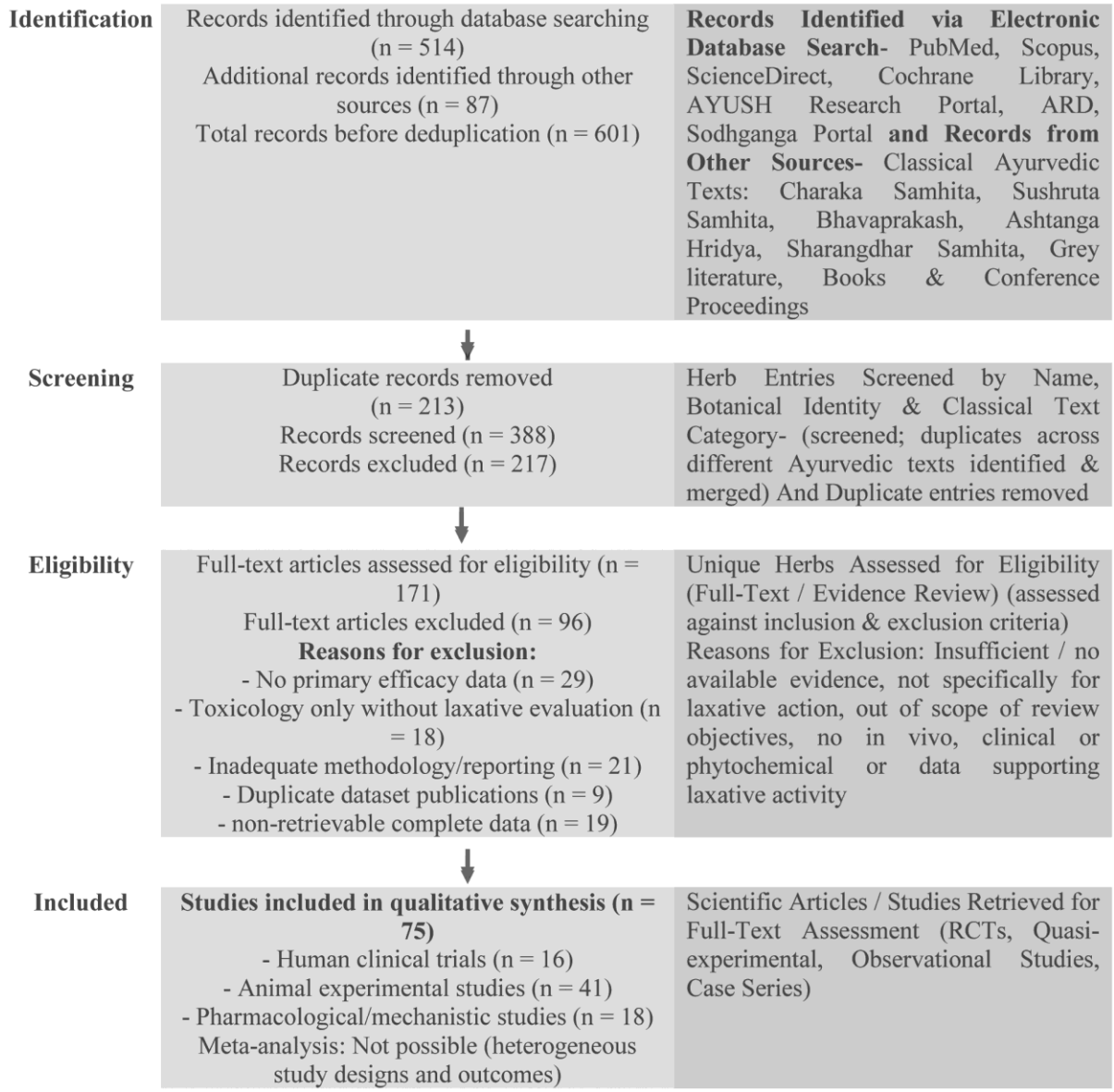
Manual collection of relevant data from recognized books, grey literature (searched from Ayurveda Research Depository-ARD, AYUSH Research Portal and *Sodhganga* portal), conference proceedings and other printed resources. The data was collected with structure search with predefined inclusion and exclusion criteria. Selection of data according to the inclusion and exclusion criteria

Study selection criteria

All reported studies included randomized controlled trials (RCTs), quasi-experimental studies, observational studies, and case series evaluating the efficacy and safety of herbal laxatives in individuals with constipation and studies published in peer-reviewed journals or gray literature

Study selection process

Filtered abstracts and titles for published content based on the aim and objective of outcomes related to the laxative properties of herbal drugs. The full-text articles potentially aimed for relevant outcomes were identified, and those for eligibility were excluded. Full-text articles for potentially relevant studies were retrieved, and their eligibility was assessed (Flow Chart 1).



Flow chart 1 — PRISMA 2020 Flow diagram

Discussion

Safety profile and potential side effects

According to the local opinion, herbal compositions are considered to have fewer adverse effects than synthetically derived compounds. However, herbal derivatives may have adverse effects (reflects harmful or toxin reaction from certain drugs especially when give in excessive dose or improperly processed) and toxicity when they are not processed properly, are overproduced or interact with other compounds. Studies mentioned below are outcome of preclinical and clinical animal studies. Below mentioned some toxicity or safety profiles reported by various studies are listed below.

Arka

As per the animal study available for the safety assessment of *Arka* (*Calotropis procera*), the use of a single dose of extract is safe, ranging from 3 g/kg. This dose does not have any signs of illness or mortality; however, a dose higher than this may cause mortality regularly after prolonged use for more than 90 days[17].

Kutaki

A study conducted by *Picrorhiza* noted that a maximum dose of standard *kutkin* of 2000 mg/kg of body weight is safe if it is administered in two fractional doses. A study also confirmed the stability of *P. kurroa;* if it is stored at 50°C for 3 months, its potential remains unchanged; however, temperatures above 50°C led to degradation of its efficacy and properties. Another study reported some hepatotoxicity with sub-chronic exposure to a dose of 200 mg/kg. It is also known for its abortive property and is generally avoided during pregnancy[18].

Swarnkshiri

An extract of *Argemone maxicana* with acute toxicity that has been reported in mice weighing 18-25 g with 400 mg/kg as the LD50 if it is administered intraperitoneally. *Sanguinarine*, (seed oil extract), is toxic to experimental animals and is 2.5 times more toxic than dihydrosanguinarine. It dilates small arteries and capillaries and its ability to oxidize pyruvic acid. Glaucoma, epidemic dropsy, loss of body weight and liver weight, hepatomegaly and peritoneal edema are reported to cause a toxic effect from its alkaloids. Even a single exposure to test oil derived from it may cause genotoxic effects at rates, which is also found in routine edible oils as adulterants, which cause severe toxic effects, such as gall bladder cancer, in Swiss albino rat model[19].

Eranda

Studies have shown that the consumption of ricin, a potent toxin presents in seeds, by an individual may lead to severe complications such as GI bleeding, pulmonary edema, shock, and inflammation in the next 4-5 h. It stops the production of protein due to its inactivating effect[20]. While processing castor oil, the ricin is removed from it, which no longer causes genotoxic effects. Processed castor oil with a safe profile is widely used for daily or daily purposes, such as medical or nonmedical applications in the form of cosmetics, local applications, coatings, or lubrication purposes, or in oral form[21]. However, in conventional medicines, its use is quite restricted, as it is associated with dizziness, vomiting, abdominal cramps and bloating. Second, its prolonged use may also involve the use of a cathartic colon due to anatomic changes. Another reported example in lip care products was contact allergic dermatitis, pruritus, or erythema in sensitive individuals. Stimulant laxatives are often not used with castor oil, which increases the risk of gastrointestinal complications[22].

***Indrayana* (*Citrullus colocynthis*)**

Indrayana fruit is widely used to treat various disorders, such as arthritis, diabetes, leprosy, constipation, mastitis, asthma, bronchitis, leprosy and cancer. If *C. colocynthis* is used along with *Nerium oleander*, severe consequences, including death rates, are noted. Similarly, a biblical story of nonfatal accidental poisoning is also mentioned in The *Book of 2 Kings*, which indicates its safety profile. Another case was reported in Riyadh Armed Forces Hospital, Saudi Arabia, in 1985, where a 37-year-old patient complained of profuse bloody diarrhea, vomiting and painful pain in the abdomen due to the intake of the fruit extract *C. colocynthis*. Pictures may add much more complexity in the form of the gelatinization of renal tissue, transudate in serous cavities, entero-hepato-nephrotoxicity and epicardial fat[23].

Saatala

A study was conducted as per OECD guidelines 425, and test doses of 500, 1000 and 2000 mg were administered orally to different mice's and monitored closely for 14 days to assess parameters such as seizure, tremor, sedation, and convulsion. After the end of the study, all the mice were found to be normal, and the lethal dose could not be determined

per the study. Therefore, this study concluded that up to 2000 mg of *E. tirucalli* is safe.

Dravanati

Phorbol esters and crotonic acid in seeds make it toxic. These toxins are oil soluble and can be removed by processing with cow's milk (Ayurveda classics). This process not only reduces the toxicity but also enhances its therapeutic values[24].

Vishanika

Aconitum possess high toxicity so it needs close monitoring prior. As per *Pharmacopoeia of the People's Republic of China,* moisture content should be less than 15%. With HPLC, isopropanol-ethyl acetate(solvent), in processed *Fuzi* the amount of DDAs should not be more than 0.020%, and similarly MDAs should be at less than 0.010%. In addition, for processed *Chuanwu,* the amount of DDAs should be less than 0.040%, while MDAs in the range of 0.070 ~ 0.15%[25].

Neel

Indigofera species is known to produce a teratogen effect due to a toxic amino acid *indospicine*. It is also reported to have hepatotoxicity, cleft palate and embryo lethality[26]. *I. endacaphylla* (creeping indigo) is reported with the livestock poisonings and deaths[27].

Evidence-based efficacy of herbal laxatives

Below is the list of human clinical evidence and preclinical animal studies to support the classical drugs with evidence-based data available across the globe.

Studies conducted on human beings

Nishotha

A 30-subject study was carried out with a formulation named PP/JLN/107/2009-10 - *Trivritta* (*Operculina turpethum* -300 mg) +*Yashtimadhu* (*Glycyrrhiza glabra* -75 mg) in a group with a dose of 2 Teaspoonful (10 mL) at bed, and it was noted that the trial drug PP/JLN/107/09-10 is both clinically and statistically significant ($p<0.001$) compared with *Isabgolin* in the management of functional constipation and exhibited clinically and statistically significant ($p<0.05$) relief from constipation[28].

Arkamulatvaka

A study of 111 samples with one capsule of *Arkamulatvaka Churna* (root bark) 3 times/day with *Takra* (butter milk) as *Anupana.* In the trial, 73 patients diagnosed with *Atisara* syndrome (diarrhea) and 38 patients diagnosed with *Pravahika syndrome* were included, and the study revealed that in diarrhea, the characteristics and consistency of *Dravamala* syndrome (loose stools) improved to those of *Ardhabaddha* syndrome (semisolid) on the initial day of treatment. The mucus in stools and tenesmus was relieved with this drug therapy. *Calotropis procera* evacuates bile by increasing secretions and has a sedative effect on the muscular fibers of the intestine, especially the colon and the rectum, reducing all pain, tenesmus and irritation and thus relieving all dysenteric symptoms. The powder of root bark is an excellent substitute for ipecacuanha in dysentery[29].

Danti

This trial included 50 patients (with advanced cancer) in two groups. In Group A, *Danti* was used as an ingredient of *Misrakasneham* (780 mg) in one dose, whereas in Group B, *Sofsena* (senna extract of 60 mg with 12 mg of senna glucocides as calcium salts) was used. Upon completion of the study, 85% of patients in the *Misrakasneham* group and 69% of those in the *Sofsena* group experienced satisfactory results for laxative effects[30].

Eranda

In a study of 114 patients who were allocated to two groups 57 each, one group was given 60 mL of Sena-Graph, while in the other group, 60 mL of castor oil was given orally to assess the purgation efficacy. One study noted that both drugs have clinical efficacy in clearing the bowel; however, a statistically nonsignificant effect was observed between the two groups[31].

Aargvadha

70 patients, treated with *Cassia fistula* syrup (CFS) presented a significant increase in defecation frequency compared with those given lactulose, along with improvements in stool consistency, pain during defecation, and overall quality of life. Another trial with children suffering from functional constipation revealed that 84% treated with CFS improved after three weeks, whereas 50% of those in the mineral oil (MO) group had better stool consistency and fewer adverse effects. Similar positive results were observed in a trial comparing CFS to polyethylene glycol, where CFS led to a higher defecation frequency and comparable efficacy. Toxicity studies in animals revealed that CFS is safe, with no significant adverse effects even at high doses[32-34]. The LD_{50} of the CFE has been estimated to be greater than 5000 mg/kg. In

the subacute toxicity study, the administration of CFE at doses of 250, 500 and 1000 mg/kg to the rats did not induce mortality. In a clinical trial, the laxative effect of *Cassia fistula* pod pulp extract was compared with the laxative effect of *Cassia angustifolia*, the results revealed their laxative effect. Therefore, given its regular traditional usage, it could be considered an effective, safe, and inexpensive laxative herb[35].

Studies conducted on animals other than human beings

A significant proportion of pharmacological and toxicity data are derived from rodent models. These studies typically utilize standardized aqueous or ethanolic extracts to evaluate laxative activity, fecal output, intestinal transit time, and safety profile. While such studies provide mechanistic insight and dose-dependent pharmacodynamic data, they do not fully replicate traditional human usage, where crude drugs, decoctions, or polyherbal formulations are administered**.**

Shankhini

An *in vivo* study was conducted on Wistar albino rats provided with a methanol extract of *S. indicum* (250 and 500 mg/kg p.o.), and their fecal matter was weighed after 8 and 16 hours. The MeOH extract-treated groups presented greater fecal output (133.32, 1.136 mg and 149.01, 1.835 mg, respectively). The test drug increased the feces output after 8-16 h at both the conc. (258.8 and 32.045 mg) and supplementary dosages (293.66, 2.219 mg)[36].

Peepal

25 rats were fasted for 12 h before the trial and then divided into 5 groups. Group I treated with 5 mL/kg saline, p.o. (negative control), Group II was treated with sodium q2picosulfate (5 mg/kg, p.o.), (positive control), whereas Group III was treated with 100 mg/kg p.o. of FRA extract. In Group IV, the rates were treated with 200 mg/kg p.o. of FRA extract, and in Group V, the rates were treated with 400 mg/kg p.o. of FRA extract. The samples were then observed for 16 h for fecal production. In conclusion, compared with those in the control group, the fecal output of the rats in the various treatment groups was greater. There was no significant difference between the control group and the 100 mg/kg extract group (p.o.), whereas there was a significant increase in the fecal output of the rats in the 200 and 400 mg/kg (p.o.) groups ($p<0.05$-0.01). The efficacy of Group V was similar to that of Group II (the standard group)[37].

Apamarga

An *in vivo* study on rates at variable doses revealed that *the* crude extract of the drug at doses of 3 and 10 mg/kg increased the output of fecal matter to the same degree as castor oil. On the other hand, at doses of 30, 100, 300, and 700 mg/kg, when given orally, it protected mice against castor oil-induced diarrhea. This study revealed that A. aspera is suggestive of a dose-specific laxative and antidiarrheal[38].

Swarnakshiri

6 Albino Wistar rats were kept at the institutional animal facility, in standard polypropylene cages with a 12 h light–dark cycle at 22±3°C and fasted for 12 h in individual cages separated with filter paper. Then divided into 5 groups, one was used as a negative control and treated with saline at 5 mL/kg p.o. The 2nd group was treated with sodium picosulfate (5 mg/kg, p.o.) (positive control) whereas the third and fourth groups received 100 and 250 mg/kg p.o. *Argemone mexicana* aqueous extract, respectively. Compared with the control, the extract increased the fecal output of the rats in a dose-dependent manner. Compared with the control, *Argemone mexicana* significantly increased the fecal output at doses of 100 and 250 mg/kg (p.o.) in the rats ($p<0.05$ and $p<-0.01$, respectively). The effect of the extract at the higher dose of 250 mg/kg (p.o.) was like that of the standard drug sodium picosulfate (5 mg/kg, p.o.). The effects of the aqueous extract of *A. mexicana* on loperamide-induced constipation in rats were noted. In loperamide-induced constipation, the aqueous extract of *A. Mexicana* significantly increased the total fecal output ($p<0.05$). The reduction in loperamide-induced constipation in response to 250 mg/kg (p.o.) plant extract was comparable to that in response to 5 mg/kg sodium picosulfate[39].

Kabila

Three rates were observed in cages with blotting paper to absorb liquid and fecal material, and only water was provided during the trial. The control group was given only vehicle, whereas the test groups were given a resin suspension of 120 mg/kg orally along with milk. After a stipulated time, the papers were weighed, and the results revealed that the ethanolic extract of the resin had a significant laxative effect on the rates[40].

Saatala

This species is widely used to treat constipation. Study on mouse, allocated to the control group and

trial group. The control group was provided with 10 mg/kg as a standard. Another trial group was given 200 or 400 mg/kg extract of *E. tirucalli*. Each mouse was subsequently housed in a separate cage for 16 h. The extracted stool was collected, and the data were recorded. This methodology was adapted 3 times to obtain accurate data. At the end of study, the trail groups presented greater stool weights than control group. The 200 mg/kg group presented a 29.31% increase in stool weight, and the 400 mg/kg group presented a 63.79% increase in stool weight. The study is a clear indication of the laxative action of *E. tirucalis*[41].

Shunthi

Trail was conducted on 36 induced constipated rats. In Group 1, 6 rats were treated with a physiological solution (10 mL/kg of body weight) and considered the negative control group. In Group 2, a sample size of 6 was treated with LP (3 mg/kg of body weight), whereas in Group 3, 6 rats were initially provided LP, and after 1 h, they were managed with 75 mg/kg of body weight of ZOAE. In Group 4, 6 rats were initially managed with LP, and 1 hour later, they were managed with 150 mg/kg body weight ZOAE. In Group 5, another 6 rats were treated with LP, and after 1 h, they were managed with 300 mg/kg body weight ZOAE. Finally, in Group 6, a total of 6 rats were initially provided LPs, and after 1 h, they were treated with the standard drug YOH (2 mg/kg of body weight). On the 5th day of the experiment, pellets of rat feces were collected after 24 h and weighed wet/dry. After the completion of the study, the rats were decapitated, and the administration of ZOAE significantly improved the movement of the bowels, improved intestinal contraction and increased stool output. It was also shown that it provides protection against LP-induced constipation by improving the transit of the colon, which leads to an increase in the amount of stool and fecal water. The efficacy of ginger is confirmed by the high content of carbohydrates and dietary fiber. Fibers provide mechanical stimulation, which causes the mucosa to be elevated, resulting in increased hydration in the colon, which in turn promotes natural peristalsis and colonic motility. ZOAE contains a low content of condensed tannins (0.33 mg/g DM), as a high number of tannins combine with proteins and form a complex protein–tannate complex, which leads to their denaturation, which is considered a major factor that inhibits the GIT by making the intestinal mucosa highly resistant and less secretive[42].

Drugs with availability of evidence in uncategorized form

Dravanati

Dravanati is used to treat various constipated conditions. The Chinese system of medicine has been widely using it for the over 2000 years. Seeds of *C. tiglium* - *Crotonis Fructus* (CF). CF requires processing prior to its clinical application, which was later recognized as *Crotonis Semen Pulveratum* (CP), which is a processed cream that is used to protect against gastrointestinal damage. To assess its efficacy, a trial evaluating the effects of CF and CP on loperamide-induced constipation has been reported. In this trial, constipated mice were administered CF or CP (45.5 and 136.5 mg/kg, b.w., e.g.) once daily for a period of seven days. The results revealed that CP was more significant than CF in providing protection against pathological injury and inflammatory cell infiltration. Both the CF and CP treatments may correct gut microbiota and parabacteroides abnormalities in mice with constipation, along with a significant decrease in Bacillus and an increase in beneficial bacteria such as *Candidatus and Arthromitus.* In addition, both CF and CP also contain diterpenoids and alkaloids, which directly contribute to laxative action[43].

Agnimukhi/Langali

G. superba contains alkaloids which is majorly responsible for its laxative properties. Among which *Colchicine* is a major alkaloid which has known stimulation for gastrointestinal tract, as it has property to disrupt microtubule function, enhance the intestinal epithelium's motility and cell division intestinal epithelium. This action cause improved motility of intestine and secretions thus providing the action of laxative effect[44].

Chirabilva

Earlier research indicates that powder or decoction of bark is used check constipation as it corrects the digestive fire and normalize the distorted *Kapha and Pitta Dosha*. It is also reported with the anthelmintic anti-inflammatory and carminative properties. Daily intake of decoction is noted with the benefits of blood purification and correction in digestive disorders[45].

Shakuladani/Katuka

It's rhizomes and dried, in small doses is used to treat prolonged constipation conditions and

GIT disorders. For therapeutic action it contains various phytochemicals like iridoids, glycosides, and phenolics[46].

Mahashyama/Vidhara

Also known as cluster fig, fruits are having laxative action which is used to treat constipated conditions. It contains various phenols, flavonoids, alkaloids, and tannins. These phytochemicals contribute to its laxative action. Studies are reported where apart from fruit, its barks are also having laxative properties, additionally therapeutic benefits like antioxidant, anti-inflammatory, and gastroprotective activities[47].

Tilvaka/Lodhra

It is used extensively in Ayurveda to treat skin disorders and various gastrointestinal disorders. It is noted to show some anti-diarrheal properties; however, a targeted study is yet lacking to prove its clear demarcation as laxative. It contains various bioactive compounds like flavonoids, alkaloids, and triterpenoids which has digestive benefits which may indirectly contribute to laxative action[48].

Karmuka

Arecoline, a major bioactive ingredient is reported with property that it stimulates smooth muscle contraction of intestines by exciting voltage gated potassium channels receptors and muscarinic acetylcholine receptor, which has a direct relation with intestinal motility and thus causing laxative action. It is often used to treat GIT disorders like bloating, dysentery and constipation[49].

Putrashreni/Dantibheda

The laxative property of *D. macraei* has yet to be explored; however, it has been reported to have anti-inflammatory, antioxidant, and antimicrobial activities. *D. macraei* also contains some alkaloids, bibenzyls, polysaccharides, and phenanthrenes. Some notable polysaccharides and alkaloids may be laxative[50].

Gavakshi/Indrayana

The fruit of *C. colocynthis* is mostly used as an antidiabetic drug; however, the pulp of the fruit of *C. colocynthis* is considered a strong laxative. The extraction of pulp at a dose of 0-6-1 g per day is considered an overdose of drug and may induce bloody diarrhea, whereas a dose of 2-4 g is considered fatal[51].

Lata Karanja

It has notable medicinal action specially with laxative effects and digestive benefits. It possesses the constituents like alkaloids, glycosides, flavonoids, and fixed oils. A study reported that decoction of leaves reduces the amount of toxins of *E. coli*, cholera and bacterial invasion. It is observed that it also has selective efficacy has selective anti-diarrheal action with efficacy against cholera and entero-invasive bacterial strains causing bloody diarrheal episode[52].

Snuhi

Latex of *Snuhi* is a purgative, acrid property that may cause dermatitis[53]. Its leaf extract has been noted to increase the frequency of defection and increase wet defecation. Research revealed that the E. *neriifolia* extract purging index was increased to 286.22 compared with that of the vehicle control, with an index of 201.63, and resulted in an increase in wet defecation. The leaf extract of *E. neriifolia* leaves alone does not cause diarrhea, but if it is used in combination with castor oil, it results in diarrhea at an increase of 20.29% in comparison with that of castor oil alone[54]. The leaves of *E. neriifolia* are pungent, carminative and possess the property of a bitter laxative[44].

Saptala

Euphorbia dracunculoides, is extensively used in Ayurveda as laxative. It has various constituents including phytochemicals like flavonoids, coumarins, saponins, tannins, terpenoids, anthraquinones, anthocyanins, betacyanins, and alkaloids, which contribute to its medicinal properties, its laxative is mostly due to presence of diterpenoids. Studies have isolated specific diterpenoid esters from the plant, such as *Euphordracunculin* C, which have shown significant biological activity[55].

Kusha

Its laxative action is not well known yet; however, research was conducted with the hydroalcoholic extract of plant and that study it is observed that it shown a minimal increase in fecal output as compared to standard laxative. A fecal output with increased amount of 500 mg/kg was not which is not having significantly difference then standard sennosedes[56].

Haritaki

In vivo and *in vitro* studies are suggestive of contributions to digestive aid, which has the potential to act as a laxative[57]. In Manipur, localities use it as a light purgative and additionally use it to treat piles in ano, ulcers and colds. *Chebula* fruits are well recognized for their astringent, carminative, purgative, and stomachic properties and are extensively used in Ayurveda, Unani, and homeopathic systems of medicine[58].

Amalaki

It is a constituent of potent drug *Triphala*. It is considered as *Rasayana* (vitalizer) restorative, stomachic, anti-pyretic, laxative, common cold and fever, as a diuretic, liver tonic, refrigerant, and hair tonic as well as to prevent ulcer and dyspepsia. It is rich source of Vitamin C, amino acids and other minerals[59].

Jyotishmati/Maalkangani

It possess property like brain tonic, emetic, purgative, aphrodisiac, used in treatment of gout, rheumatism, leprosy, leukoderma, and as abortive drug[60]. It is also used to treat various neurological disorders, lumbago, constipation, skin disorders and coughing. In Chinese system of medication, it is used to treat joint pain, swellings, and rheumatoid arthritis[61].

Vibhitaki

It has hypolipidemic, analgesic, antimutagenic, purgative, antimicrobial and anti-inflammatory properties[62]. Its fruits are astringent and have laxative, anthelmintic and antipyretic actions used to treat various disorders, such as asthma, dyspepsia, piles, eye diseases, hepatitis and bronchitis[63]. Half-ripen fruit and gum from the bark also have purgative properties. Fruit kernel is a narcotic, and obtained oil shown purgative action, and its prolonged use is well tolerated in mice[64].

Pippali

The laxative properties of P. longum have not yet been reported directly; however, this fruit extract has been shown to have anti-amoebic effects on *E. histolytica* in rats. Had also shown anti-giardial effects and stimulation of the immune system in mice infected with *Giardia lamblia trophozoites*. Another study reported that its ethanolic extract and piperine cured 90% and 40% of rats with cecal amoebiasis, respectively. Hence, its effects on gastrointestinal health may contribute to laxative action[65].

Shatpushpa

A combination of *F. vulgare* and turmeric oils has been reported to significantly improve IBS patients and has been shown to be beneficial in preventing damage to barrier function and the immune response and even restoring the gut microbiota[66]. Another study reported that *Foeniculum vulgare* combined with *Cassia obtusifolia* significantly promoted loperamide-induced constipation in rats by enhancing bowel movements and stool consistency. These findings indicate that *Foeniculum vulgare* may play an impactful role in curing constipation through laxative action by stimulating digestive processes and improving gastrointestinal motility[67].

Vacha

Acorus calamus, commonly known as sweet flag, has been traditionally utilized for its medicinal properties, particularly as a laxative. Its rhizomes contain bioactive compounds such as essential oils, alkaloids, and flavonoids, which contribute to its health benefits. *Acorus calamus* supports digestive health by stimulating peristalsis, facilitating bowel movement, and increasing the number of digestive secretions to soften the stool. It also has antispasmodic effects, relaxing gastrointestinal muscles and easing discomfort. While animal studies show promise for its laxative effect, clinical trials in humans remain limited, and regulatory restrictions exist in some areas owing to safety concerns[68,69].

Vidanga

The laxative action has been the subject of various studies, demonstrating its significant potential in promoting bowel movements. The active component, embelin, is primarily responsible for this effect. Research highlights its broad range of medicinal properties, including its use as a carminative and anthelmintic agent. Studies have shown that embelin helps alleviate oxidative stress and inflammation, which may also contribute to its laxative properties by promoting improved digestive health and bowel function[70].

Conclusion

Herbal laxatives have long been used to manage constipation and other digestive issues. These laxatives promote bowel health while minimizing complications and dependency. Various clinical studies have shown the effectiveness of herbs in treating constipation. Studies have confirmed that these herbs significantly improve bowel movements and reduce constipation symptoms, sometimes outperforming conventional laxatives *such as Isabgol*. Some herbs, such as *Eranda,* are safe when properly processed. while *Swarnkshiri* and *Arka*, show mild toxicity at high doses but are safe in controlled amounts. Herbal laxatives differ significantly in pharmacodynamic action. Bulk-forming agents such as Isabgol act primarily through mechanical stool augmentation and are suitable for

chronic mild constipation. In contrast, stimulant or purgative agents such as Eranda produce active intestinal stimulation and are indicated in acute constipation or specific Vata-predominant conditions. Therefore, therapeutic selection must be indication-specific rather than generalized under the broad term "herbal laxatives." More research and standardized trials are needed to align traditional practices with modern medicine. Ayurvedic laxatives offer effective solutions with fewer side effects than conventional treatments do. They are integrated into mainstream medical practices to complement modern therapies, particularly for patients who do not respond well to synthetic drugs. Several plant-derived laxatives originally described in Ayurvedic literature, such as psyllium husk and castor oil, are widely utilized in contemporary medical practice, including by modern physicians and surgeons, particularly for bowel regulation and pre-procedural bowel preparation. While evidence supports the efficacy of these laxatives, large-scale clinical trials are needed to confirm their safety profiles, proper dosages, and long-term effects. Although numerous studies are accessible through AYUSH Research Portal, DHARA, and indexed Ayurvedic journals, future research should focus on standardized formulations, larger randomized clinical trials, and incorporation of Ayurvedic parameters such as Agni, Koshta, and Prakriti to enhance evidence-based validation. Ayurvedic herbal laxatives present a promising alternative to synthetic drugs, especially for those seeking a holistic and less invasive approach.

Author Contributions

PN has drafted and conceptualized the manuscript, methodological design of the review strategy; establishment of inclusion and exclusion criteria; systematic screening and validation of selected studies; compilation and critical appraisal of preclinical and clinical safety data; analysis of toxicological profiles HP & ST had collected, screened the data, data extraction and synthesis related to efficacy outcomes; drafting of major sections including pharmacodynamics, phytochemical correlations, and therapeutic indications; preparation of tables summarizing traditional references and clinical evidence. NS had supervised, overall guidance and reviewed and refined the manuscript.

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Conflict of Interest

Authors declare that there is no conflict of interest.

Data Availability

The datasets generated and/or analyzed during the current review are available from the corresponding author upon reasonable request.

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