



Exploring the Efficacy of Pra-Cough-H Syrup Herbal Product in Cough Treatment: A Comprehensive Research Study

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Abstract Cough represents a common symptom encountered in clinical practice, often warranting effective treatment strategies. Pra-Cough-H Syrup, an herbal formulation, has emerged as a promising candidate for cough management. Pra-Cough-H syrup contains *Adhatoda Vasica Nees*, *Glycyrrhiza glabra*, *Cordia dichotoma*, *Emblca officinalis*, *Viola odorata* Linn, *Abrus precatorius*, *Zizyphus vulgaris*, *Solanum surattenseburm f*, *Pistacia integerima*, *Vitis vinifera* Linn, *Foeniculum vulgare*, *Zingiber officinale*, *Piper longum*, *Piper nigrum*, *Elettaria cardamomum* and *Cinnamomum camphora*. Overall, this study provides compelling evidence supporting the efficacy and safety of Pra-Cough-H Syrup as a viable therapeutic option for cough management. Further research endeavors are warranted to elucidate its optimal dosing regimens, long-term efficacy, and potential synergistic effects with conventional therapies, thereby optimizing its clinical utility in diverse cough-related conditions.

Keywords Pra-Cough-H Syrup, Cough Treatment

1. Introduction

The clinical issue at hand, the act of coughing is the primary symptom that prompts individuals to seek medical assistance. Estimations on the frequency of coughing differ, however, up to 12% of the overall population experience chronic coughing, which is characterized by a cough persisting for more than 8 weeks. Chronic cough is more prevalent in women than in males and typically occurs during the fifth and sixth decades of life. It can persist for an extended period, causing significant physical, social, and psychological consequences. The debilitating consequences of chronic cough are comprehensible, as individuals afflicted with this ailment experience hundreds or even thousands of coughing episodes every day. This frequency of coughing is comparable to that observed in cases of acute viral cough, but chronic cough can endure for extended periods of months or even years. The majority of people characterize the cough as either dry or producing just small quantities of sputum. If there is an excessive amount of sputum, it may indicate the presence of bronchiectasis or sinus illness [1-3].

Chronic cough is a characteristic of various prevalent respiratory diseases such as chronic obstructive pulmonary disease, asthma, and bronchiectasis. It is also associated with certain non-respiratory conditions like gastroesophageal reflux and rhinosinusitis. In some rare cases, chronic cough can be the initial symptom of conditions such as idiopathic pulmonary fibrosis and eosinophilic bronchitis. Cough is a common side effect of



various pharmacological treatments, but it is particularly prevalent in patients using angiotensin-converting–enzyme (ACE) inhibitors. Approximately 20% of people who use ACE inhibitors experience cough as a side effect. Patients suffering from chronic cough seek medical assistance from several healthcare professionals across different specializations. If prompt resolution is not obtained, these patients can present diagnostic and management difficulties to multiple clinical services and may consult numerous specialists. There is a lack of comprehensive research on the progression and characteristics of persistent cough in people receiving primary care. Nevertheless, among a group of patients who experienced persistent cough without a clear cause after being seen at a specialized clinic, and who were reevaluated more than 7 years later, 14% of them had experienced a spontaneous resolution of their cough, while 26% had observed a decrease in the severity of their cough [4-6].

Adhatoda vasica nees

The current investigation of this botanical specimen indicates that *Adhatodavasica Nees*, a member of the *Acanthaceae* family, usually referred to as *Adosa*, is distributed across many parts of India and globally. It possesses numerous applications in traditional Ayurvedic medicine. *Vasica* is renowned for its efficacy in treating respiratory ailments.

Adhatoda vasica, a plant belonging to the *Acanthaceae* family, has been traditionally utilized in the Southeast tropical zone due to its effectiveness in treating many conditions such as headache, colds, cough, whooping cough, fever, asthma, dyspnea, phthisis, jaundice, chronic bronchitis, and diarrhea. It demonstrates commendable pharmacological properties. The study of *Vasica* has resulted in the identification of 233 chemicals belonging to several categories, including alkaloids, flavonoids, essential oils, terpenoids, fatty acids, phenols, and more. This source shows great potential as a phytopharmaceutical agent with a wide range of pharmacological activities, such as antibacterial, antifungal, hepatoprotective, anti-ulcer, abortifacient, antiviral, anti-inflammatory, thrombolytic, hypoglycemic, anti-tubercular, antioxidant, and antitussive activities [7-10].

Glycyrrhiza glabra (Mulethi, Licorice)

Glycyrrhizin, derived from liquorice roots, is the primary active component found in herbal remedies commonly used to treat liver ailments. The plant possesses properties that make it effective as an anti-inflammatory, spasmolytic, laxative, anti-depressive, anti-ulcer, and anti-diabetic agent.

The *Glycyrrhiza* genus is widely distributed worldwide, encompassing over 30 species. It was the most commonly recommended herb in Ancient Egyptian, Roman, Greek, East China, and the Western regions during the Former Han era. Licorice root extracts have numerous advantageous benefits, including the treatment of throat infections, TB, respiratory and liver illnesses, as well as their antibacterial, anti-inflammatory, and immunodeficiency properties. It is crucial to conduct screenings of medicinal plants in order to identify the potential of novel chemicals for treating chronic diseases such as respiratory, cardiovascular, anticancer, hepatoprotective, and others. Licorice may serve as a viable natural substitute for existing treatments in the eradication of recently developed illnesses, with few adverse effects [11-13].

Cordia dichotoma (Labheda)

Cordia dichotoma, commonly known as Indian cherry, is a traditional medicinal plant that is renowned for its therapeutic properties in treating various conditions, particularly those related to liver disorders. *Cordia dichotoma* Forst. is a plant of the *Boraginaceae* family. It is commonly known as bhokar, lasura, gonda, Indian cherry, and shlesmataka. This plant is of modest to moderate size. *C. dichotoma* is a medium-sized tree that may be found throughout Himachal Pradesh and is generally referred to as lashuda. Plant components such as leaves, fruit, bark, and seeds have been documented to possess antidiabetic, antiulcer, anti-inflammatory, immune-modulating, and analgesic properties. Analysis of fruit, leaves, and seeds reveals the existence of pyrrolizidine alkaloids, coumarins, flavonoids, saponins, terpenes, and sterols [14-16].



Emblica officinalis (Amla)

Emblica officinalis Gaertn. or *Phyllanthus emblica* Linn., often known as Indian gooseberry or Amla, is highly valued in the ancient indigenous system of medicine, including Ayurveda, for its therapeutic and nutritional properties that help restore energy and strength. The extracts from different sections of *E. officinalis*, particularly the fruit, contain a variety of phytoconstituents, including a significant quantity of polyphenols such as gallic acid, ellagic acid, various tannins, minerals, vitamins, amino acids, fixed oils, and flavonoids such as rutin and quercetin. The extract or plant has been found to be effective in treating a wide range of conditions, including inflammation, cancer, osteoporosis, neurological disorders, hypertension, lifestyle diseases, parasite infections, and other infectious disorders. *Emblica Officinalis*, whether used in conjunction with other herbs or on its own, has been beneficial in improving symptoms of colds, warts, skin ailments, influenza, anemia, diabetes, lung disorders, high cholesterol, and as an immune booster in cancer patients [17-19].

Viola odorata Linn (Banafsa)

Banafsha refers to the blooms of the *Viola odorata* Linn. plant, sometimes known as "sweet violet," which belongs to the *Violaceae* family. These flowers have been used since ancient times in both Unani and Ayurvedic schools of medicine to treat various ailments. The Banafsha is commercially accessible in three different forms: as dried aerial portions of the plant, as dried flowers exclusively, and as aerial parts without flowers. The majority of these components are utilized for medicinal purposes and have been scientifically demonstrated to possess sedative, diuretic, anti-asthmatic, laxative, anti-dyslipidemic, antihypertensive, antibacterial, antidiabetic, antimicrobial, anti-inflammatory, antioxidant, antipyretic, hepatoprotective, anticancer, cytotoxic, anti-tubercular, and antifungal properties. It is utilized either on its own or as a component in several formulations such as syrup, decoction, infusion, confection, semisolid preparations, oil, and tablet [20-22].

Abrus precatorius (Gojihawa)

Abrus precatorius leaf, also known as Chanoti, has been utilized in traditional remedies by Tribes for numerous years. It is known to possess a wide spectrum of therapeutic properties, such as antibacterial, antifungal, antitumor, analgesic, anti-inflammatory, antispasmodic, anti-diabetic, antiserotonergic, and anti-migraine effects. Additionally, it has been employed in the treatment of various conditions including inflammation, ulcers, wounds, throat abrasions, and sores. This article focuses on the ethnomedicinal usage, phytochemistry, ethnopharmacology, and pharmacological applications of *Abrus precatorius* L (Fabaceae), a medicinal plant native to Nigeria. This plant has been utilized in traditional medicine for the treatment of various ailments including cough, sores, wounds inflicted by dogs, cats, and mice, mouth ulcers, gonorrhea, jaundice, haemoglobinuric bile, tuberculous painful swellings, skin diseases, bronchitis, hepatitis, schistosomiasis, stomatitis, conjunctivitis, migraine, and eye pain. Studies on the phytochemical analysis of the active components of *Abrus precatorius* have been documented. The plant was found to contain several alkaloids, terpenoids, and flavonoids, such as luteolin, abrectorin, orientin, isoorientin, and desmethoxycentaviridin-7-O-rutinoside, as well as glycyrrhizin, abrusoside A to D, abrusogenin, and abruquinones D, E, and F. *A. precatorius* has been found to exhibit antibacterial, antioxidant, and hepatoprotective properties in multiple pharmacological tests [23-25].

Zizyphus vulgaris (Unnav)

Zizyphus vulgaris has a cultivation and consumption history spanning around four millennia. *Zizyphus vulgaris* polysaccharide is classified as a complex heteropolysaccharide. Contemporary pharmacological research indicates that polysaccharide is a primary functional active compound found in *Zizyphus vulgaris* fruit, possessing a diverse range of biological effects [26].

Solanum surattense burm f (Kantkari)

Solanum surattense, a perennial herbaceous plant, is commonly utilized in traditional medicine due to its therapeutic properties. A comprehensive review of available literature indicates that phytochemical compounds have been found



in various parts of plants, including roots, stems, leaves, fruits, and seeds. These compounds have been reported to exhibit a diverse range of pharmacological activities, such as hepatoprotective, cardioprotective, antiasthmatic, and mosquito repellent properties. The many components of the plant, including the stem, leaves, root, and fruit, has significant potential in combating both Gram-positive and Gram-negative bacteria, as well as fungal pathogens. The plant components of this organism exhibit several medicinal properties, including anthelmintic, anti-convulsant, antihyperlipidemic, anti-malarial, anti-urolithiatic, natriuretic, anti-ulcer, wound healing, anti-asthmatic, hypoglycemia, anti-oxidant, hepatoprotective action, and cytotoxicity. Comprehensive evidence has been recorded to demonstrate the presence of several chemical components such as alkaloids, saponins, steroids, tannins, flavonoids, glycosides, oleanolic acid, proteins, phenolic compounds, and numerous other amino acids, which have been extracted and identified [27-29].

Pistacia integerrima (karkashiringi)

Pistacia integerrima J.L. Stewart ex Brandis, commonly referred to as Karkatashringi, is a significant medicinal plant in India. Its galls are highly regarded in traditional medicine for their therapeutic properties in treating asthma, chronic bronchitis, phthisis, diarrhea, fever, and various respiratory tract ailments. Additionally, this plant is recognized for its antispasmodic, carminative, antiamoebic, and anthelmintic properties.

Pistacia integerrima, commonly known as crab's claw, is a tree of significant ethnobotanical importance that is indigenous to Asia. Historically, various portions of plants, especially their galls, have been used to cure conditions such as cough, asthma, dysentery, liver diseases, and snake bites. The plant mostly comprises alkaloids, flavonoids, tannins, saponins, and sterols, which are found in various parts such as the leaf, stem, bark, galls, and fruit. *Pistacia integerrima* extracts have yielded several terpenoids, sterols, and phenolic substances. Plants possess several biological activities, such as antimicrobial, antioxidant, analgesic, cytotoxic, and phytotoxic effects, which are attributed to their chemical contents [30-32].

Vitis vinifera Linn (Munakka)

The fruits of *Vitis vinifera* L., often referred to as grapes, are widely consumed globally due to their substantial nutritional and therapeutic advantages. Inflammation is widely recognized as a substantial challenge to healthcare and is linked to numerous disorders, including cancer, chronic lower respiratory disease, inflammatory bowel diseases, diabetes, asthma, osteoporosis, nephritis, and more. Diabetes mellitus is characterized by chronic harm, impairment, and malfunction of various organs, particularly the kidneys, heart, nerves, eyes, and blood vessels [33-35].

Foeniculum vulgare (Sonf)

Foeniculum vulgare, a member of the Apiaceae family, is a widely recognized and significant medicinal and fragrant plant. It is usually referred to as fennel and is extensively utilized for its carminative, digestive, lactagogue, and diuretic properties. Additionally, it is employed in the treatment of respiratory and gastrointestinal diseases. The main ingredients of this species include phenols, phenolic glycosides, and volatile fragrance compounds such as trans-anethole, estragole, and fenchone. Various pharmacological experiments conducted in both laboratory and animal models have provided strong evidence of *F. vulgare*'s ability to display antifungal, antibacterial, antioxidant, antithrombotic, and hepatoprotective properties. These findings support the use of *F. vulgare* in various therapeutic applications. The antioxidant activity of *F. vulgare* is attributed to the phenolic compounds that are extracted from it, while its pleasant flavor is due to the presence of volatile aroma compounds [36-38].

Zingiber officinale (Sauth)

Zingiber officinale Rosc. is extensively utilized as a spice and therapeutic herb in folk and traditional medical practices. Ginger, scientifically known as *Zingiber officinale* and belonging to the Zingiberaceae family, is a well renowned spice globally. The plant is a perennial, low-growing species with elongated leaves, yellowish-green blooms, and a dense, fleshy underground stem. Ginger has long been utilized in Ayurvedic and Chinese medicine to



treat a variety of ailments, including heart difficulties, menstruation disorders, food poisoning, osteoarthritis, epilepsy, nausea, inflammation, cough and cold, motion sickness, menstrual cramps, and cancer, among others. In addition to this, it also demonstrates antibacterial and antioxidant effects. Ginger's therapeutic benefits stem from the existence of compounds such as gingerol, paradol, and shogaols [39-41].

Piper longum (Pipali)

Piper longum, sometimes known as Pippali, is a climbing vine that belongs to the Piperaceae family. It is native to northeastern India and the Western Ghats. The *Piper longum* fruit has been utilized in traditional medicine, namely in the Ayurvedic system of medicine. The main components extracted from different portions of *P. longum* include piperine, piperlongumine, sylvatin, sesamin, diaeudesminpiperlonguminine, pipermonaline, and piperundecalidine. It is primarily employed for the treatment of chronic bronchitis, asthma, constipation, gonorrhea, paralysis of the tongue, diarrhea, cholera, chronic malaria, viral hepatitis, respiratory infections, stomachache, bronchitis, illnesses of the spleen, cough, and tumors [42-44].

Piper nigrum (Marich)

Piper nigrum, commonly known as "the king of spices," originates from the Western Ghats of India. Its significant presence in the spice sector has led to its worldwide recognition. The substance contains a significant amount of pungent alkaloid piperine, which is known to have several intriguing pharmacological effects. Black pepper has medicinal properties that make it effective in treating digestive disorders such as large intestine toxins, various gastric difficulties, diarrhea, and indigestion. It can also be used to alleviate respiratory disorders, including cold fever and asthma. Piperine demonstrates a wide range of pharmacological effects, including antihypertensive, antiplatelet, antioxidant, anticancer, antipyretic, analgesic, anti-inflammatory, anti-diarrheal, antibacterial, antifungal, anti-reproductive, and insecticidal actions. *Piper nigrum* has also been discovered to reduce lipid peroxidation in living organisms. The presence of flavonoids and phenolic compounds in it may contribute to its stated antioxidant action [45-47].

Elettaria cardamomum (Laghuela)

Cardamom, scientifically named *Elettaria cardamomum*, is a highly esteemed perennial herb that is sometimes referred to as the "Queen of Spices." It belongs to the Zingiberaceae family. The *Elettaria* plant is indigenous to the regions of South India and West Malesia. This genus has been associated with many pharmacological qualities, including anti-inflammatory, analgesic, antioxidant, and antibacterial activities. *E. cardamomum* also functions as an Ayurvedic aphrodisiac and treatment for digestive disorders, asthma, bronchitis, urinary complaints, and various other human illnesses. Cardamom is rich in proteins, minerals, lipids, carbohydrates, terpenoids, carotenoids, flavonoids, and essential oils. Its capsules are commonly used as a spice and flavoring in food [48-50].

Cinnamomum camphora (K Kapoor)

Camphor, derived from the wood of the camphor tree (*Cinnamomum camphora*), has been utilized globally for millennia as a therapeutic agent to alleviate a wide range of symptoms including inflammation, indigestion, infection, congestion, discomfort, and irritation. Ravintsara oil, derived from the leaves of *Cinnamomum camphora* in Madagascar, has also undergone testing against the SARS-CoV-2 coronavirus. Camphor has a range of biological properties, including insecticidal, antibacterial, antiviral, anticoccidial, antinociceptive, anticancer, and antitussive effects. Additionally, it is employed as a substance that enhances the penetration of the skin [51-53].



Sr. No.	Product Name - Pra-Cough-H Syrup			Composition	
	Ingredient	Latin name	Part of plant	Quantity	Proof of Concept
1	Vasa	<i>Adhatoda vasica nees</i>	Panchang	250 mg	API I/I
2	Mulethi	<i>Glycyrrhiza glabra</i>	Root	200 mg	API I/I
3	Labheda	<i>Cordia dichotoma</i>	Fruit	250 mg	BPN
4	Amla	<i>Emblica officinalis</i>	Fruit	150 mg	API I/I
5	Banafsa	<i>Viola odorata Linn</i>	Flower	200 mg	BPN
6	Gojihawa	<i>Abrus precatorius</i>	Fruit	250 mg	API I/III
7	Unnav	<i>Zizyphus vulgaris</i>	Fruit	250 mg	BPN
8	Kantkari	<i>Solanum surattense burm f</i>	Panchang	200 mg	API I/I
9	karkashiringi	<i>Pistacia integerima</i>	Gall	200 mg	API I/I
10	Munakka	<i>Vitis vinifera Linn</i>	Fruit	50 mg	API I/I
11	Sonf	<i>Foeniculum vulgare</i>	Fruit	150 mg	API I/III
12	Sauth	<i>Zingiber officinale</i>	Kand	150 mg	API I/I
13	Pipali	<i>Piper longum</i>	Fruit	50 mg	API I/I
14	Marich	<i>Piper nigrum</i>	Seed	50 mg	API I/I
15	Laghuela	<i>Elettaria cardamomum</i>	Fruit	50 mg	API I/III
16	Kapoor	<i>Cinnamomum camphora</i>	Niryas	25 mg	BPN
17	Sugar			40%	BPN
18	Sodium Benzoate			0.5%	API I/VI

Inclusion Criteria

1. Age above 20 year
2. Presents to health center with a URI characterised through the presence of rhinorrhea and cough for 7 or fewer days` duration.
3. Patient is the perfect candidate, withinside the judgment of the investigator, to take part withinside the have a look at.
4. Parents/caregivers offer a solution of at least "somewhat" (three factors on a 7-factor Likert scale) for at the least 2 of the three questions associated with nocturnal cough frequency, impact on baby's sleep, and impact on parental/caregiver sleep primarily based totally at the preceding night's signs and symptoms.

Exclusion Criteria

1. Signs or signs and symptoms of a extra treatable ailment (eg, asthma, pneumonia, laryngotrachebronchitis, sinusitis, allergic rhinitis).
2. Diagnosis of influenza, bronchiolitis or respiration syncytial virus (RSV).
3. History of reactive airlines ailment, asthma, or continual lung ailment.
4. Use of any medicine to deal with cough inside 6 hours of bedtime at the nighttime previous to or at the day of enrollment. (Use of analgesic medicinal drugs which include acetaminophen or ibuprofen isn't always exclusionary.)
5. Presence of any sizeable ailment inclusive of immunodeficiency, hepatic, renal, cardiovascular, or hematologic ailment or every other fitness situation that, withinside the opinion of the investigator, could avoid participation withinside the have a look at.



Intervention

82 patients has been enrolled in this study. Before the study Cough ratio in the table

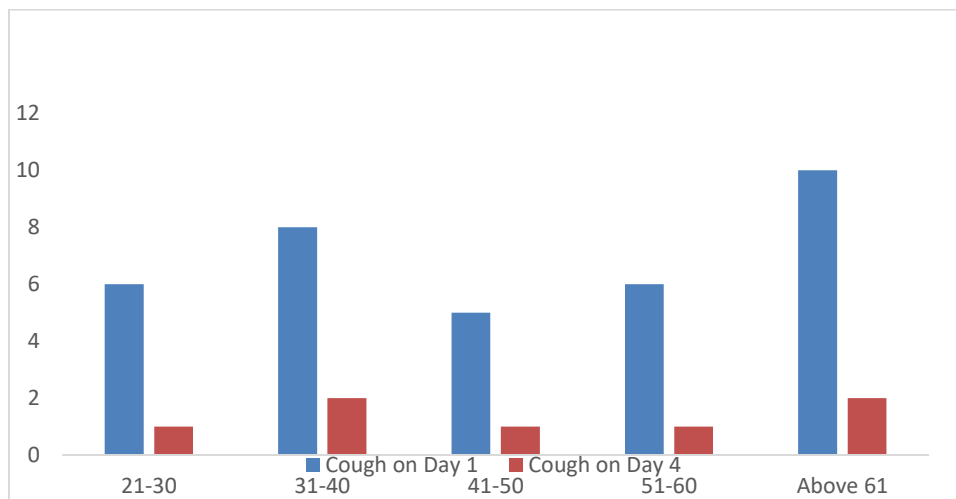
S. No.	Age Group (Years)	Patient	Cough on Day 1
1	21-30	12	6
2	31-40	24	8
3	41-50	12	5
4	51-60	12	6
7	Above 61	22	10

After enrolment completed start twice a day Syrup Pra-cough-H.

Results & Discussion

82 Patients has been enrolled in this study. All patients has been taking syrup Pra-cough-H. The effect was observed when we compared the score recorded on the fourth day (D4) with the score on D0 or by comparing the sum of daily cough scores after 4 days of treatment

S. No.	Age Group (Years)	Patient	Cough on Day 4
1	21-30	12	1
2	31-40	24	2
3	41-50	12	1
4	51-60	12	1
7	Above 61	22	2



In the prevailing take a look at, we describe a scientific research designed to assess the ability useful outcomes of the syrup Prs-cough-H syrup containing extracts. The take a look at product dealt with for cough thru a mechanical technique of achievement: its energetic materials has been had been specially selected for his or her capabilities to shape a barrier over the indignant mucosa and circuitously lessen the throat irritation that triggers the cough reflex.

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