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Comparative Study of Formulation and Evaluation of Herbal Syrup: A Review

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A B S T R A CT

The majority of herbal syrup's original source was plants; herbal medicine is the use of fruit extracts for therapeutic purposes. In addition to various dosages from herbal medications, syrup formulations are also included. Due to its ease of patient compliance, syrup is the most widely used and popular dosage form for treating colds and coughs. The main ingredients of the herbal cough syrup, which included honey and crude drugs like Adulsa, Tulsi, or garlic, were combined. Syrup is now used to treat a wide range of illnesses and manage their symptoms. Antioxidant syrups are used to treat cancer because their use helps the body combat free radicals, which are produced as a result of various oxidative reactions and stressors. According to recent research, a few common herbs can be used to create a cough syrup that is both affordable and safe. A specific ratio of aqueous extracts of chosen herbs was created into a syrup form, with honey serving as both a flavouring and an expectorant. The prepared herbal syrup was compared to commercial syrup and put through a number of evaluation criteria. The decoction method is used to formulate the herbal cough syrup. The final herbal cough syrup's quality was assessed using physical characteristics like colour, taste, pH, viscosity, and smell.

INTRODUCTION:

Herbal medicine is also known as phyto-medicine or herbalism it is a medicine that use plants or their crude products for the treatment of diseases. It may include also animal fungi or bacteria product. Since ancient era, herbal or plant-based medicines has been used for the prevention, cure & mitigation of diseases and time to time more and more herbal constituents of these natural sources are get enhanced. Herbal medicine has its origins in ancient cultures. It involves the medicinal use of plants to treat disease and enhance general health and wellbeing. Some herbs have potent (powerful) ingredients and should be taken with the same level of caution as pharmaceutical medications. (1). According to an estimate of the World Health Organization (WHO), about 80% of the world population Still uses herbs and other traditional medicines for their Primary health care needs as per WHO definition, there are three kinds of herbal Medicines: raw plant material, processed plant material and medicinal herbal products. Herbal drugs are finished Labelled products that contain active ingredients such as Aerial or underground parts of plant or other plant Material or combination thereof, whether in the crude State or as plant preparation.(2)Ayurvedic formulations are mainly administered by oral route and most of the orally administered Ayurvedic formulations belong to liquid dosage form of herbal drug or various drug combination.(3)Herbal syrup it is a defined as a prepared and combination and concentration decoction with Honey sugar or either some time use a alcohol. The base of such syrup is a strong herbal decoction and mixing a decoction with sugar honey help to thicken preserves the decoction Herbal plant and formulation are used for many types of disease like cough syrup and other disease. (4) The syrup may be or may not be containing medication or mixed flavouring agent. When the syrup without a medication but the flavouring agent present are known as flavoured or non-medicated syrup.(4)

OBJECTIVE :(5)

• can relieve symptoms of cold and cough such as congestion coughing and sore throat.

• can boost the immune system and helps the body fight infection.

• can reduce inflammation in respiratory system.

• can reduce coughing and help you sleep better.

• is a natural and safe alternative to prescription medication.

ADVANTAGE OF HERBAL SYRUP :(6)

- No side effects
- No Harmless
- Easily available
- Herbs Grow in common place.
- Easy to adjust the dose for child's weigh

DISADVANTAGE OF HERBAL SYRUP: (7)

•Microbial contamination take place if preservatives are not added in accurate proportion.

- Herbal medicine having another disadvantage is the risk of self-dosing of herbs which is very rare.
- Fluctuation in storage temperature may cause crystallization of sucrose from saturated syrup.

EVALUATION: -

1. **Ash value**: An Ash test involves taking a known 5gm of sample, placing the weighed sample into a dried / pre-weighed porcelain crucible, burning away the crude drug in an air atmosphere at temperatures above 500°C, and weighing the crucible after it is has been cooled to room temperature in a desiccator.

2. **Viscosity:** Thoroughly clean Ostwald viscometer with warm chromic Acid and if necessary used. 1. An organic solvent such as acetone 2. Mount viscometer in vertical position on suitable stand 3. Fill water in dry viscometer up to mark G. 4. Count time required, in second for water to flow from mark A to mark B. 5. Repeat step 3 at least three times to obtained accurate reading 6. Rinse viscometer with test liquid and then fill up to mark A, find out the time required for liquid to flow to mark B. Determination of densities of liquid as mentioned in density determination experiment. Formula for viscosity: Density of test of liquid ×Time required to flow test liquid Viscosity = × viscosity of water Density of water × time required to flow water

3. **PH Test:** - Determine the pH of syrup by suitable means; it should be 6.0 to 7.0.

4. **Turbidity Test**: - It is used to determine the concentration of suspended particle in a sample of water by measuring the incident light scattered at right angle from the sample. The scattered light is captured by photodiode which produce an electronic signal that is converted to turbidity

5. **Visual inspection**: - With the visual inspection, the ingredient & the final product are carefully examined for purity &for appearance Physical appearance of product for patient adherence compliance is critical so that it should be good looking & elegance in appearance.

6. **Physical stability**: - The syrups must be stable physically e.g., its appearance (no crystallization and microbial growth) Colour must be completely soluble with other ingredients. Odor and taste (palatable) Solid material is completely miscible in liquid.

Table: comparative study of different herbal syrup

Sr. no.	Herbal syrup	Content Name	Part of Plant	Therapeutic use	PH	Sweetening agent
1.	Formulation and evaluation of herbal cough syrup.[6]	• Fennel • Clove • Tulsi • Adulsa • Turmeric	•Fennel Fruit • Clove bud • Leaves • Leaves •Turmeric rhizomes	•Aromatic, flavoring agent • Expectorant • Antitussive • Antitussive • Antitussive	6.1-6.2	Sucrose
2.	Formulation and evaluation of polyhedral Anti-tussive syrup [8]	• Clove • Cinnamon •Black pepper • Tulsi •Peppermint • Honey	•Dried flower • Bark • Fruit • Leaves • crystal • Honey	Expectorant Expectorant Expectorant Anti-tussive Flavouring agent Sweetening agent	6.51-6.98	Honey

Sr. no.	Herbal syrup	Content Name	Part of Plant	Therapeutic use	PH	Sweetening agent
3.	Formulation and evaluation of herbal cough syrup.[6]	• Fennel • Clove • Tulsi • Adulsa • Turmeric	•Fennel Fruit • Clove bud • Leaves • Leaves •Turmeric rhizomes	•Aromatic, flavoring agent • Expectorant • Antitussive • Antitussive • Antitussive	6.1-6.2	Sucrose
4.	Formulation and evaluation of polyhedral Anti-tussive syrup [8]	• Clove • Cinnamon •Black pepper • Tulsi •Peppermint • Honey	•Dried flower • Bark • Fruit • Leaves • crystal • Honey	Expectorant Expectorant Expectorant Anti-tussive Flavouring agent Sweetening agent	6.51-6.98	Honey
5.	Formulation and evaluation of herbal syrup .[9]	• Pudina • Tulsi • Cinnamon • Honey	• Leaves • Leaves • Bark • Honey	•Carminative digestive, Antioxidant • Antioxidant • flavouring agent, Antitussive • flavouring agent, Sweetning agent , Laxative	6.1 – 6.2	Honey
6.	Formulation and evaluation of herbal syrup of Indian mulberry (Noni).[10]	•Indian Mulberry (Noni) •citrus aurantium (Orange oil) • Sugar • Alcohol	• Fruit • Fruit	• Antioxidant, Free Radical Scavenging • Flavouring agent • Preservative • Preservative	7.01	Sugar base
5. 6.	Development and evaluation of Ploy-herbal Syrup From natural Ingredients Having expectorant and antipyretic activity. [3] Formulation and Evaluation of Anti Diabetic Herbal Syrup.[11]	•Tulsi • Neem • Amla • Ginger • Honey • Cinchona • Fennel • Clove • Brahmi •Cinnamomum-m tamala] • Pisidium guajava • Peppermint oil	• Leaves • Leaves •Fruit •Stem rhizome •Honey • Bark • Fruit •Clove bud • Leaves • Leaves • Leaves •Pippermint	• Antipyretic • Antipyretic • Antipyretic • Antipyretic • Sweetening agent • Antipyretic • Expectorant • Expectorant • Antipyretic •hypoglycemic • • flavouring agent	6.4 Standard: 6.5 Test: 6.2	Honey Sugar
7.	Formulation and testing of herbal syrup for cough and asthma .[12]	• Trigonella foenum-graecum •Curcuma longa •Adhatoda vasicais • Glycyrrhiza glabra	• seeds • Rhizome • Aerial Parts • Roots	• Antioxidant • Carminative • Antioxidant • flavouring agent	5.11	----------
8.	Preparation And Evaluation of Polyherbal Cough Syrup: A Novel Approach. [13]	• Vasaka • Turmeric • Liquorice • Tulsi •Peppermint:	• Leaves •rhizomes • root • Leaves • Ariel Part	•Anti-inflammatory • Antioxidant • Expectorant • Antioxidant • Soothing effect	6.88	----------

		• Ginger • Honey	• rhizomes	• Antimicrobial		
9.	Formulation and comparative evaluation of different Sitopaladi herbal . [14]	• Sitopaladi Churna	_____	_____	DbA: 6.4 Db1: 6.4 Dpb: 6.3	----------
10.	Formulation and Evaluation of Polyherbal Syrup with Anti-diabetic activity.[15]	• Gymnema Sylvestre •Syzygium Cumini •Pipperment Oil • Erythrosine •Propylene Glycol •Methyl Paraben	• Leaves • seeds • Leaves	•Antidote, digestive • anthelmintic • Flavouring agent • Colouring agent • Preservative • Preservative	Formulation 1 : 6.3 Formulation 2: 6.3 Formulation 3 :6.2	---------
11.	Formulation and evaluation of herbal syrup of ginger with honey (TLC & HPLC) [16]	• Ginger • Honey	•Rhizomes •honey bees	•Antimicrobial, anticancer, antioxidant • Sweetning agent		Honey
12.	"Formulation and evaluation of herbal cough syrup of clove by using Jaggery base [17]	• Clove • Tulsi • Jaggery • Fennel •Black pepper	• Clove bud • Leaves • Fruit •Fruit	• Expectorant • Anti-tussive • Base • Flavouring agent •Preservative	_____	_____
13.	Preparation and Evaluation of Panax ginseng syrup. [18]	•Panax ginseng •Sucrose •water	• Root	• antioxidant	7.8	Sucrose
14.	Formulation and evaluation of herbal syrup of turmeric extract.[6]	• Turmeric • Orange oil • Sugar Base Invert • Alcohol Amaranth red	• Rhizomes • Fruit	Antioxidant, Free Radical Scavenging Flavouring agent Preservative Preservative Colouring agent	F1: 7.87 F2: 7.80 F3: 7.40 F4: 7:45	Sugar base
15.	Formulation and evaluation of natural antitussive cough syrups .[19]	•Rosa damascene • Methyl paraben • propyl paraben • sorbitol, glycerine	• Flower Petal	• antitussive • Preservative • preservative	_____	Sorbitol
16.	Formulation and Evaluation of Hyptis suaveolens Herbal Syrup . [20]	• Hyptis suaveolens • Mulethi • Adulsa • Pudina •methyl paraben	• plant • root • Leaf • Leaf	• Carminative Stimulant •anti-viral, anti-inflammatory • antitussive •	5.1	_____
17.	Formulation and evaluation of herbal syrup of Arjuna extract.[6]	•Arjuna extract • Orange oil	• bark • fruit	• Antioxidant • Flavouring agent • preservative • preservative	_____	Sugar base

		• Sugar Base Invert • Alcohol •Amaranth red		• colouring agent		
18.	Formulation and evaluation of herbal syrup of Kalmegh extract. [21]	• Kalmegh Extract • Orange oil • Sugar Base Invert • Alcohol • Amaranth red	• Root • Fruit	• Antioxidant • Flavouring agent • preservative • preservative • colouring agent	F1:7.05 F2:7.50 F3:7.35 F4:7.35	_____
19	Formulation and evaluation of herbal syrup of bhilawa seed extract.[22]	•Bhilawa Seed Extract • Orange oil • Sugar Base Invert • Alcohol • Amaranth red	• Fruit • Fruit	• Antioxidant • Flavouring agent • preservative • preservative • colouring agent	F1:7.05 F2:7.50 F3:7.35 F4:7.35	_____
20	Formulation and Evaluation of Herbal Syrup.[5]	• Adulsa • Tulsi • Honey • Fennel • Garlic • Black pepper	• Leaves • Leaves • Fruit • rhizomes • Fruit	• Antitussive • Antitussive • Base • Aromatic • Aromatic • Antibacterial	6.2	_____
21.	Formulation and evaluation of medicated herbal syrup of Vincaextract. [23]	• Vinca extract • Orange oil • Sugar Base Invert • Alcohol •Amaranth red	• Fruit	• Anticancer • Flavouring agent • preservative • preservative • colouring agent	7.05	_____
22	Formulation and Evaluation of Ginger Macerated Honey Base Herbal Cough Syrup".[24]	•Tulsi •Ginger •Adulsa •Clove •Cardamom •Fennel •Liquorice •Pippermint •Honey	• Leaves •Rhizomes • Leaves •bud • bark • Fruit	• Antitussive • Antitussive • Antitussive • Expectorant • Aromatic	6- 6.2	Honey
23	Formulation And Evaluation Of Herbal Cough Syrup.[4]	• Tulsi • Ginger • Clove • Cardamom • Termerse • Honey •Black pepper	• Leaves • Root • Bud • Fruit • Rhizomes	•Anti-inflammatory •Reducing inflammation • Expectorant • Aromatic • antiinflamatory • Preservative	_____	_____
24	Formulation and evaluation of herbal syrup .[7]	• kiwi • Tulsi •Orange peel	• Fruit • Leaves • Fruit	• Antioxidant • Antioxidant • Flavouring agent	F1:6.53 F2:5.41 F3:6.03	_____

		• Betal • Sugar • Alcohol	• Leaves	• Antioxidant • preservative		
25	Formulation and evaluation of herbal cough syrup .[25]	• Tulsi • Ginger • Clove • Cardamom • Adulsa • Honey • Turmeric	• Leaves • Rhizomes • Bud • Fruit • Leaves • Rhizomes	• Antitussive • Expectorant • Expectorant • Aromatic • Antitussive • Sweetning agent • Antitussive	6.1- 6.2	Honey
26	Formulation Development And Evaluation of Herbal Cough Syrup.[26]	• Kiwi • Tulsi • Ginger • Cinnamon • Lemon oil • Honey	• Fruit • Leaves • Root • bark • Fruit	• Antioxidant • Antitussive • Antitussive • Antiinflamatory • Preservative •Viscosity modifier	F1:4.49 F2: 4.38 F3:4.83	_____
27	Formulation and in-vitro evaluation of Benzoate Anti-tussive syrup .[27]	•benzonatate •sodium acetate, •sodium citrate • Glycerine •Menthol •Propylene glycol	____	• Excipient • Excipient	4.51 4.65	_____
28	Formulation and evaluation of madhuca longifolia extract syrup for lithiasis .[28]	•M. Longifolia •Propylene glycol •Methyl paraben •Saccharin •Sorbitol	• Laves	• Solubilizer • Preservative • Sweetner • Sweetner	6.1-6.3	Saccharin Sorbitol
29.	Formulation and Evaluation of Diuretic Herbal Syrup from Hemidesmus indicus.[29]	• Sucrose • Glycerine • Sorbitol •methyl paraben •Propyl paraben	_____	•sweetening agent • Excipient • preservative • Preservative	5.62	Sorbitol

CONCLUSION:

The formulation studies of all these formulations were Within specifications. Also, the Physiochemical properties of Prepared syrup like colour, odour, taste, pH, viscosity were Satisfactory it was Conclude that the Ayurvedic Herbal syrup which are prepared from Natural ingredients they shows fewer side effects as compared to synthetic syrup which are Prepared from synthetic compound. The prepared Ayurvedic herbal syrup was evaluated Using various parameter and was found to be satisfied for the use.

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