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Formulation and In-vitro Evaluation of Poly-herbal Cough Syrup

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Abstract: The aim of this study was to formulate and evaluate a polyherbal cough syrup containing ashwagandha, tulsi, turmeric, peppermint and clove as active ingredients. These herbs have been traditionally used in ayurveda for their anti-inflammatory, antitussive, expectorant, immunomodulatory and antioxidant properties. The cough syrup was prepared by extracting the herbs in water and adding honey as a sweetener and preservative. The physicochemical parameters, such as pH, viscosity, density, and microbial load, were determined for the cough syrup. The in-vitro evaluation of the cough syrup was performed by using different equipment and methods. The polyherbal cough syrup showed significant results in different evaluation tests. The cough syrup also exhibited good stability and safety profile. The results suggest that the polyherbal cough syrup is a promising alternative to conventional cough remedies, as it offers multiple benefits from the synergistic effects of the herbs.

Keywords: Herbal Cough Syrup, Tulsi, Turmeric, Crude Drug.

INTRODUCTION

In Ayurveda, drug formulation is based on two fundamental principles, namely the use of single drugs and the use of multiple drugs. The latter, known as polyherbal formulations, involves combining two or more herbs to achieve therapeutic effects. While the concept of polyherbalism is unique to Ayurveda, it's difficult to explain in modern scientific terms. The ancient Ayurvedic text "Sarangdhar Samhita" emphasizes the concept of synergism behind polyherbal formulations. While single herb formulations have established therapeutic benefits due to their active phytoconstituents, they are often present in insufficient quantities to achieve the desired therapeutic effect. Scientific research has shown that combining plants of varying potencies can result in a greater effect than the sum of their individual effects, producing positive herb-herb interactions that create either pharmacokinetic or pharmacodynamic synergism. Polyherbal formulations have gained popularity due to their high effectiveness in treating a

wide range of diseases. whooping cough It is a non-invasive infection of the ciliated epithelium of the lower respiratory tract caused by Bordetella pertussis. The specific manifestations of the disease are parox[^]small coughing, lymphocytosis with rare incidences of neurological symptoms including convulsions and encephalitis. It is essentially a disease of infancy and early childhood. The disease is most fatal in early infancy and maternal antibodies do not afford any protection. The World Health Organization estimated 60 million cases of pertussis occurring annually with half a million to one million deaths. The disease has been controlled in most of the developed countries with the use of killed whole cell pertussis vaccine. The hazards of vaccine range from minor local to systemic reactions with rare incidences of convulsions, infantile spasms and more serious neurological illnesses - Hence, the acceptability of pertussis vaccination by parents and physicians in some countries has been low Despite the adverse reactions, benefits of vaccination outweigh the risks from the disease. A safe and effective vaccine with lesser reactogenicity is highly desirable which may be either a whole cell vaccine or a subcellular/acellular pertussis vaccine. A number of workers from various countries have reported the production of acellular pertussis vaccine with low toxicity and lesser side effects.

MATERIAL AND METHODS

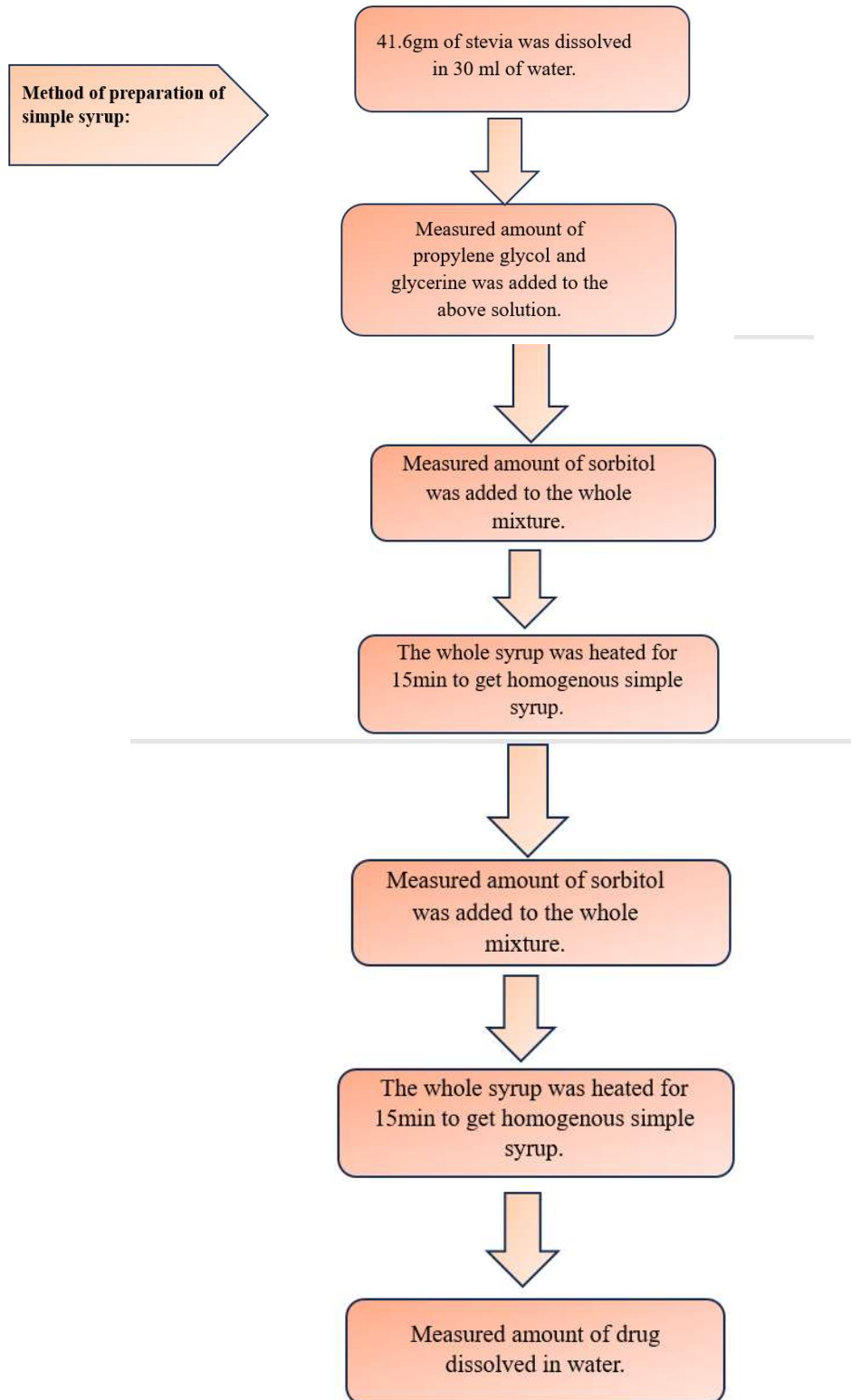
Selection and Collection of herbs

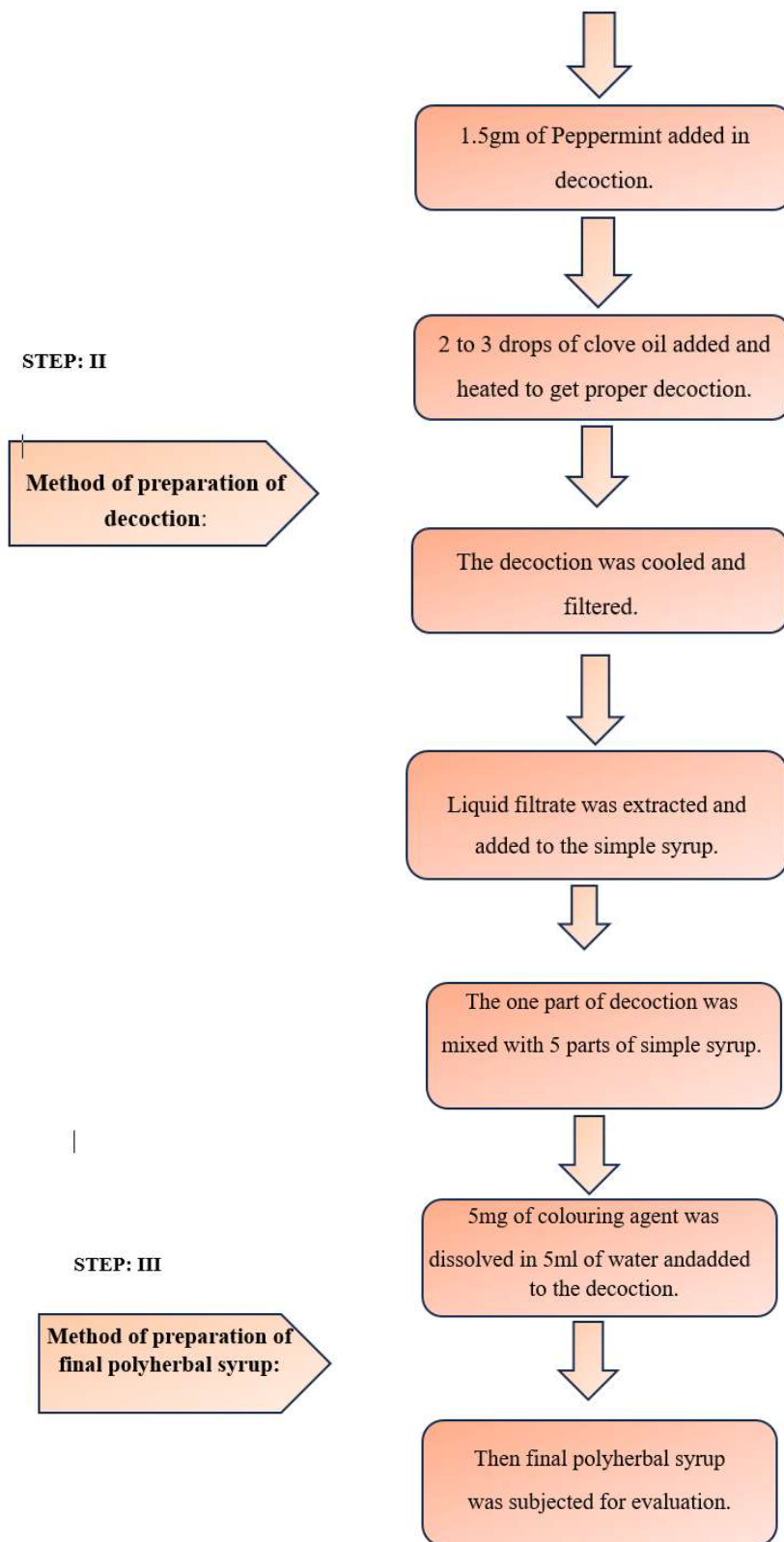
The selection of materials and herbs for the cough syrup was based on a comprehensive literature review. The formulation includes Ashwagandha, Tulsi, Turmeric, Peppermint, and Clove.

Table.1 Formulation Ingredients for Polyherbal Cough Syrup

Sr. No	Name of Ingredient	Quantity
API		
1	Ashwagandha	10gm
2	Tulsi	10gm
3	Turmeric	10gm
4	Peppermint	1.5gm
5	Clove	Quantity sufficient
Excipient		
6	Stevia	41.6gm
7	Glycerine	37.5ml
8	Propylene glycol	37.5ml
9	Sorbitol	70ml
10	Water	30ml

STEP: I





Evaluation of herbal syrup:

Physicochemical parameters⁶

The herbal syrup was evaluated for various physicochemical parameters such as physical appearance (colour, odour, taste), pH, Wt/ml and Specific Gravity.

1. **Color examination:** - Five ml final syrup was taken into watch glasses and placed against white back ground in white tube light. It was observed by the naked eye for its colour.
2. **Odour examination:** - Two ml of final syrup was smelled individually. To negate the impact of the previous scent, a two-minute interval was maintained between each scent.
3. **Taste examination:** - A pinch of final syrup was taken and examined for its taste-on-taste buds of the tongue.
4. **Determination of pH:** - Placed an accurately measured amount 10 ml of the final syrup in a 100 ml volumetric flask and made up the volume up to 100 ml with distilled water. Measuring pH with Digital pH Meter After 10 Minutes of Sonication After sonication for approximately 10 minutes, the solution's pH was measured with the assistance of a digital pH meter.
5. **Stability testing:** - The stability of the polyherbal syrup was tested by subjecting the samples to accelerated temperature conditions for a period of three months.
6. **Specific gravity at 250C:** - A thoroughly clean and dry Pycnometer was selected and calibrated by filling it with recently boiled and cooled water at 250C and weighing the contents. The capacity of the Pycnometer was calculated. Adjusting the temperature of the final syrup to about 200C and the Pycnometer was filled with it. Then the temperature of the filled Pycnometer was adjusted to 250C, any excess syrup was removed, and weight was taken. To calculate weight per millilitre, subtract the weight of the Pycnometer from the filled weight. To obtain the weight per millilitre, divide the weight in air, in grams, of the syrup that fills the Pycnometer at the specified temperature by the Pycnometer's capacity in millilitres at the same temperature. Specific gravity of the final syrup was obtained by dividing the weight of the syrup contained in the Pycnometer by the weight of water contained, both determined at 250C.

Result And Discussion

Several physiochemical parameters were evaluated to determine the quality of the polyherbal cough syrup formulation.

Table 2. Evaluation Poly Herbal Cough Syrup

Sr. No	Parameter	Observation
01	Colour	Yellow
02	Odour	pleasent
03	Taste	Mild sweet
04	pH	4
05	Specific Gravity	1.2 gm/ml
06	Stability	yes

1. **Color examination:** - The colour of the poly herbal cough syrup was examined under the light (Table. 2)
2. **Odour examination:** - The odour of the formulation was pleasant.
3. **Taste examination:** - The taste pinch of final syrup was observed, and it was mild sweet.
4. **Determination of pH:** - The pH of the prepared poly herbal cough syrup determined by using Digital pH Meter (Table. 2)
5. **Stability testing:** - The stability of poly herbal cough syrup was examined for 3 months.
6. **Specific gravity at 250 °C:** - The specific gravity of formulation was determined by using Pycnometer (Table. 2).

CONCLUSION

In present study we developed and effective polyherbal cough syrup which is found stable, effective and safe. It could be easily and efficiently used for the relief of wet cough in place of any allopathic wet cough syrup. The polyherbal formulation provided experimental evidence for protection agents by the formulated polyherbal cough syrup, all the above finding support the traditional claims in ayurvedic and siddha for use of these formulation in the treatment of cough by virtue of its antitussive activity. The cough suppressant activity elicited by the formulated herbal syrup may also attributed to the presence of some phytoconstituent such as Curcumin.

REFERENCES

1. R W Fuller, D M Jackson; Physiology and treatment of cough. Thorax 1990 45: 425-430. DOI: 10.1136/thx.45.6.425.
2. Meher A, Mohapatra T, Nayak R, Pradhan A, Agrahari A, Mohapatra T, Ghosh M; Antitussive evaluation of formulated polyherbal cough syrup; Journal of Drug Delivery & Therapeutics; 2012, 2(5), 61-64.
3. Meza RA, Bridges-Webb C, Sayer GP, Miles DA, Traynor V, Neary S. The management of acute bronchitis in general practice: results from the Australian Morbidity and Treatment Survey, 1990–1991. Aust Fam Physician. 1994; 23(8):1550–3.
4. Delozier JE, Gagnon RO. National ambulatory care survey: advance data. Hyattsville, MD: National Center for Health Statistics; 1991; 203.
5. McCormick A, Fleming D, Charlton C. Morbidity statistics from general practice—fourth National Morbidity Survey, 1991–92. London, UK: HMSO, Office for National Statistics; 1995.
6. Barnes PJ, Grunstein MM, Leef AR, Woolcock AJ. Asthma. Philadelphia : Lippincott Raven; 1997; 1: p1.
7. Patel D.A, Patel Y.K, Shah P.B. Development and Evaluation of herbal syrup from Neolamarckla cadamba Roxb. Bosser leaves. International Research Journal of Pharmacy. 2012; 3(9); 201-202.