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(RESEARCH ARTICLE)

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Formulation and evaluation of herbal syrup using kiwi basil orange peel

Badhe Payal * and Gugale Vaishnavi

Department of Pharmaceutics, Samarth Institute of Pharmacy, Belhe, Maharashtra, India.

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Abstract

The natural herbal syrup was formulated by adding the extracts of Basil leaves, Kiwi, Orange peel Constituents. It may also act as a bronchodilator as an expectorant. Leaves extract is a traditional medicine and reported to use in the management of cough. An herbal syrup is prepared by combining a concentrated decoction with either honey or sugar, and sometimes alcohol. Herbal plants and formulations are used for the many types of diseases like cough syrup and many more other diseases.

Keywords: Herbal Syrup; Kiwi; Basil; Orange peel; Evaluation

1. Introduction

This study introduces the formulation and evaluation of a herbal syrup using extracts from kiwi fruit, basil, and orange peel. The syrup is intended for its potential medicinal properties, leveraging the natural benefits of these ingredients. Specifically, kiwi's antioxidant properties, basil's antibacterial and cough-relieving effects, and orange peel's flavoring and preservation capabilities are highlighted.

Following ingredients are used in formulation

- Kiwi fruit: It consist of fruit plant Actinida deliciosa belonging to family Actinida. It is uses as antioxidant and vitamin C.
- Basil leaves: It consist of fresh leaves of plant *Ocimum basilicum* belonging to family: Lamiale. It is uses as CVS disorder, diabetes mellitus.
- Orange peel: It consist fruit of plant *Citrus sinesis* belonging to family: Rutaceae. It uses as anti-oxidant, anti-cancer and neurodegenerative disorder.
- Sugar: It consist stem of plant Saccharum officinarum belonging to family: Poaceae. It act as preservative and uses to increases shelf life of product.
- Alcohol: It act as a preservative.

* Corresponding author: Badhe Payal.

Table 1 Role of ingredients in herbal syrup

Sr. No	Ingredient	Role
1.	Kiwi	Antioxidant
2.	Basil	Antibacterial
3.	Orange peel	Flavoring agent
4.	Sugar	Preservative
5.	Alcohol	Preservative

2. Material and method

2.1. Herbal syrup preparation

Table 2 Formulation No.1 F (1) 40ml

Sr.No	**Ingredient**	**Quantity**
1.	Kiwi extract	10 ml
2.	Basil extract	7ml
3.	Orange peel extract	6 ml
4.	Sugar	17 ml

2.2. Procedure

- Three kiwi fruits were taken and its outer coat was removed, then cut it into small pieces, then obtained pieces were added into 50 ml of water then heated slowly to get extract. The extract got was filtered and then cool. From whole extract 10 ml of solution is measured.
- About 15gm peel obtained from three oranges was cut into small piece added to 50 ml of water then heated slowly to get extract. The extract was filtered and then cool. From whole extract 10 ml of solution is measured.
- About 25 gm of basil leaves added into 20 ml of water, heated slowly to get extract. The extract got was filtered and then cool. From whole extract 15ml of solution is measured.
- Weight accurately 17ml of sugar.
- All extract are mixed with each other and 40ml of syrup was obtained.
- This obtained syrup was transferred to amber color bottle, close it tightly and place it into cool place.

Table 3 Formulation 2 (F2) - For 20ml

Sr.No	**Ingredients**	**Quantity**
1.	Kiwi extract	4 ml
2.	Basil extract	5 ml
3.	Orange peel extract	3 ml
4.	Sugar	4 ml
5.	Alcohol	4 ml

Table 4 Formulation 3 (F3) - For 40ml.

Sr. No	Ingredient	Quantity
1.	Kiwi extract	10 ml
2.	Basil extract	7 ml
3.	Orange peel extract	6 ml
4.	Sugar	17 ml

2.3. Evaluation parameter

2.3.1. Procedure to determine density

- Clean the specific gravity bottle with nitric acid.
- Rinse the bottle with distilled water.
- Then rinse the bottle with an organic solvent like acetone and dry.
- Take weight of empty dry bottle with capillary tube stopper (w1).
- Fill the bottle with unknown liquid and place the stopper, wipe out excess liquid from outside the tube using tissue paper.
- Weight bottle with unknown liquid on analytical balance (w2).
- Calculate weight in grams of unknown liquid (w3).
- Weight bottle with stopper (w3).

Formula for density: Density of liquid test (syrup) = weight of liquid under test /volume of liquid under test = w3/v

2.3.2. Procedure to determine Specific gravity

- Clean thoroughly the specific gravity bottle with chromic or nitric acid.
- Rinse the bottle at least two to three times with purified water.
- If required, rinse the bottle with an organic solvent like acetone and dry.
- Take weight of empty dry bottle with capillary tube stopper.
- Fill the bottle with distilled water and place stopper.
- Weight bottle with stopper and water on analytical balance (w2).
- Repeat the procedure for liquid under test by step 4 to 6.
- Weight bottle with stopper and liquid under test on analytical balance (w3).

Formula for specific gravity: Specific gravity of liquid test (syrup) = weight of liquid test /weight of water = w5/w4.

2.3.3. Procedure determine the viscosity

- Clean the Ostwald viscometer with acetone.
- Mount viscometer in vertical position on a suitable stand.
- Fill water in dry viscometer up to mark.
- Count time required, in second for water to flow from mark A to mark B.
- Repeat step at least 3 times to obtained accurate reading.
- Rinse viscometer with test liquid and fill it up to mark A, find out the time required for liquid to flow to mark B.

Formula for viscosity

Density of test liquid × Time required to flow test liquid Viscosity = × Viscosity of water Density of water × Time required to flow water

2.3.4. pH determination

pH paper

Solutions: Stock solution: Acetic acid 0.2molar: Dissolve 1.4 ml of glacial acetic acid in Solutions: Stock solution: Acetic acid 0.2molar: Dissolve 1.4ml of glacial acetic acid in 10ml of distilled water in a volumetric flask. Molecular weight of glacial acetic acid weight per ml is 1.234.

a) Buffer solution: Dissolve 5 gram of potassium hydrogen phthalate in sufficient carbon dioxide free water to produce 10ml.

Figure 1 Density meter

Figure 2 Specific gravity

Figure 3 Viscosity meter

Figure 4 pH meter

Figure 5 pH Paper

3. Result

Table 5 Result of evaluation parameter

Sr. No	Parameter	F1	F2	F 3
1.	Density	1.02gm	1.03gm	1.03gm
2.	Specific gravity	0.2344	0.3423	0.5432
3.	Viscosity	2.50cp	2.66cp	2.69cp
4.	pH Determination			
	a) pH Paper	Neutral	Neutral	Neutral
	b) pH meter	4.67	3.78	5.78
5.	Organoleptic character			
	1) Color	Yellow	Faint green	Yellow
	2) Odor	Aromatic	Alcoholic	Aromatic
	3) Taste	Sweet	Sweet	Sweet

4. Discussion

The herbal products are the symbol of safety in contrast to the synthetic drugs which are regarded as unsafe to human being and environment. These are the naturally occurring substances which is beneficial for human health and it plays a medicinal role.

Nor be toxic or neither be harmfull it is better than chemical combination syrup.

5. Conclusion

The final formulation (F3) was obtained is stable than formulations F1, F2 . The formulation (F3) was obtained and minimize the error in formulation F1, F2. The formulation (F3) having antioxidant property hence it will be very helpful as industries to make the similar formulations on the large scale.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest to be disclosed.

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