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Research on: Formulation and Evaluation Of Elixir Of Pomegranate Peels

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ABSTRACT :

Oral dosage form are most popular among other dosage form. In terms of bioavailability liquid dosage form is better than that of solid dosage form. In the present scenario monophasic liquid dosage forms such as syrups ,elixirs , throat paints, mouth washes, Gargles have gained huge popularity. These are very basic preparations which involve brief processes machineries and are cost effective also. Pomegranate fruit, peels, fruit juice contains various bioactive compounds viz. polyphenols, tannins, flavonoids, phenolic acid and dietary fibres . Sweet pomegranate is useful for chronic coughing, the roughness of the throat, and chest pain and acts like a mucus-softening agent. In this study we formulated elixir using pomegranate peel extract at three different concentrations in F1, F2, F3. These formulations were evaluated for different physical parameters and it showed good results.

KEYWORDS : Punica granatum , Cough , Pomegranate peel extract, Elixir, Ethanol

INTRODUCTION

Originating in the Middle East and India, the pomegranate (*Punica granatum* L.) is a significant fruit found in tropical and subtropical countries. It has been utilised medicinally for ages by ancient cultures. Pomegranates are known to have antiinflammatory, antioxidant, anti-cancer, and antiproliferative properties [1-3].

SYNONYMS

Hindi : Anar, Sanskrit : Dadimah, English : Pomegranate, Marathi : Dalimba, Gujarati : Dalimba, Bengali : Dadim, Tamil : Madalai, Telgu : Danimma, Malayalam : Talimatatum, Pharsi : Anar tursa, Arabi : Roman Hamiz, German : Granatapfels.

BOTANICAL CLASSIFICATION

Botanical name- *Punica granatum* Kingdom: Plantae (Angiosperms) Order: Myrtales Family: Lythraceae Genus: *Punica* Species: *P. granatum* [4]

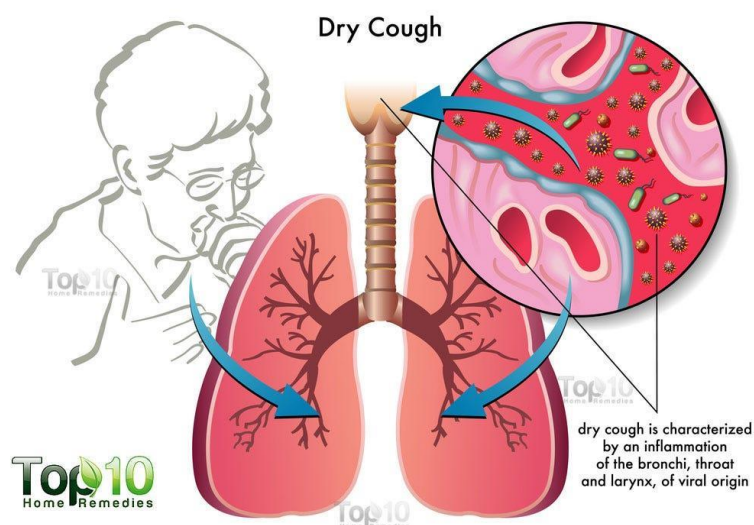
Pomegranate is a long-lived and drought-tolerant plant. Arid and semiarid zones are popular for growing pomegranate trees. They are widely cultivated in Iran, India, and the Mediterranean countries such as Turkey, Egypt, Tunisia, Spain, and Morocco.[5] However, pomegranate is categorized as a berry but it belongs to its own botanical family, Punicaceae. The only genus is *Punica*, with one predominant species called *P. granatum*. [6]The pomegranate (*Punica granatum* L.), originating in the Middle East, is one of the rising tree crops grown worldwide. Its peel constitutes about 50 of a whole fruit's weight and remains a waste product in the pomegranate juice production process. Pomegranate peel extract, enriched with phenolic and flavonoid constituents, had potent antioxidant features [7,8]. Pomegranate peel extracts displayed extraordinary antioxidant properties with high competence in free radical scavenging and lipid oxidation suppression activity [9]. The production and consumption of pomegranates keep increasing owing to their taste and nutrition. . It is worth noting that pomegranate peels contain many bioactive compounds such as polyphenols, dietary fiber, vitamins, minerals, etc. [10, 11]. Numerous in vitro and in vivo studies have shown that these substances have a broad range of biological activities and health benefits, such as antioxidant, anti-inflammatory, anti-cancer, and so on [12–15]. In addition, their presence is associated with the prevention and treatment of several chronic metabolic diseases including cardiovascular diseases, diabetes, and obesity [16, 17]. Therefore, the bioactive components in pomegranate peels can be exploited as functional ingredients to better utilize the by-product resources, further providing added value to the pomegranate industry.



Figure1 : Bioactive compound of pomegranate peel [18]

COUGH

There are many types of drugs used to suppress cough and are often prescribed in combination. Before dealing with the particular type of drug used, it is important to consider briefly the Nature of cough production, its role in disease and desirability of suppressing it. [19] Sweet pomegranate is useful for chronic coughing, the roughness of the throat, and chest pain and acts like a mucus-softening agent [20,21,22,23,24]. It is mentioned in Al-Hawi that when soaked in alum and rainwater, pomegranate is useful for the throat and lungs [23]. Also, Avicenna believed when pomegranate seeds are mixed with rain water, it would be beneficial for the lower respiratory system [25]. Studying the Islamic traditional textbooks showed that pomegranate is highly recommended for dry coughing [22]. For instance, Ibn Beytar prescribed a mixture of pomegranate with the oil of sweet violet (*Viola odorata*) for dry cough [19]. This beneficial effect is also mentioned by many other ITM physicians like Ibn Nafis Qarshi [22], Dawoud Antaki [20], and Ghasani [21]. On the other hand, sour pomegranate is harmful to the respiratory system and it hurts the lungs and throat [26].



MATERIALS –

The ripe pomegranate were collected from local region,Pune,Maharashtra,India. All other materials and chemicals used were of either pharmaceutical or analytical grade .

METHOD -

Preparation of pomegranate peels extraction –

- i) The water extract of peel powder of *Punica granatum* peel was prepared co-precipitation method.
- ii) The extract peel powder prepared by taking 20gm of pomegranate peel powder in 250 ml deionized water .
- iii) The solution was stirrer half hour the extract was collected and filter then stored in clean, dried beaker for further use .[27]

Preparation of elixir : [28,29]**Stage 1) Preparation of active drug and vehicle:**

Weigh accurately of drug and excipients.

Stage 2) Mixing of solution :

The alcohol soluble ingredients and the water soluble ingredients dissolved in water are mixed .

Stage 3) Addition of preservative and flavouring agents:

The preservative like propyl paraben and flavouring agent like pomegranate juice is added in the above solution .

Stage 4) Preparation of final elixir: All ingredients are mixed in a beaker stirred continuously on a magnetic stirrer for proper mixing of ingredients in solution .

**FORMULATION TABLE :**

Sr.no.	Ingredients	F1	F2	F3
1	Pomegranate Extract	15	15	15
2	Ethanol	2	4	6
3	Pomegranate Juice	10	10	10
4	Propyl paraben	0.015	0.015	0.015
5	water	Up to 30 ml	Up to 30 ml	Up to 30 ml

EVALUATION OF ELIXIR :

It refers to the evaluation of the elixir by its colour , odour, appearance,texture etc. The external characters of the formulation were examined based on the method described in standard procedure.

1. Physicochemical evaluation :

Physicochemical parameters were determined , including the determination of Ph,content of uniformity etc.

2. Physical evaluation :

Clarity ,viscosity determination , UV absorbance,refractometer ,calorimeter etc.

3. Viscosity determination :

Measurements of viscosity of preparation using different methods like capillary tube viscometer , Brookfield viscometer.

4. PH :

The PH of Various formulation was determined by PH scale , PH of each formulation is carried out triplet times and average value is represented it was found to be 7.3.

5. Oswald Viscometer :

The consistency of elixir should be clear it was determined by using oswald viscometer sample is repeated about 2-3 times .0.9873cps viscosity is found .

6. Alcohol content determination :

The alcohol content of the formulation was found to be 5.54%.

7.Stability Studies :

Stability testing of prepared formulation was conducted by storing at different temperature conditions for the period of one month. The packed glass vials formulation stored at different temperature conditions like, room temperature and were evaluated for physical parameter like color,odour, PH, consistency.

RESULT AND DISCUSSION :**Morphological Evaluation :**

Elixir was evaluated for morphological parameter showed in the table .The colour of the formulation was brownish red. The odour of prepared formulation is pleasant, fruity and good acceptable which is desirable to oral intended formulations. Clarity and viscosity is acceptable as per requirement of dosage form preparation.

Morphological Evaluation of Elixir

Sr.No.	Parameter	F1	F2	F3
1	Colour	Brownish Red	Brownish Red	Brownish Red
2	Odour	Pleasant	Pleasant	Pleasant
3	Apperance	Smooth Fine	Smooth Fine	Smooth Fine
4	Clarity	Clear	Clear	Clear

Evaluation of elixir with different parameter

Sr.No.	Formulation	pH	Viscosity	Alcohol Content
1	F1	7.3	0.9873cps	2.27%
2	F2	7.3	0.9873cps	5.54%
3	F3	7.2	0.9756cps	8.31%

CONCLUSION :

Natural remedies are more acceptable in the belief that they are safer with fewer side effects than synthetic one. Herbal formulations have growing demand in the world market. This herbal elixir help to treat cough. It is good attempt to formulate the herbal elixir which contain natural herbal ingredients such as pomegranate extract. Elixir contain alcohol which act as self – preservative so less chance to contamination. After evaluation, we found good properties for elixir like stability, colour ,odour and clarity of it also maintained. The overall study is useful to substantiate product claim due its useful benefit on human being.

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