



INTERNATIONAL JOURNAL OF PHARMACY & LIFE SCIENCES
(Int. J. of Pharm. Life Sci.)

**Formulation and Evaluation of Polyherbal Gargle from
Ratanjot**

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Abstract

Herbal medicine has its origins in ancient cultures including those of the Egyptians, American Indians and Chinese. The use of herbal extracts in various forms is entirely consistent with the primary health-care principles. These aid in healing and are effective in controlling microbial plaque in gingivitis and periodontitis. Herbal medicines have been used widely throughout human history and according to world health organization (WHO) about 80% of the human population used herbal medicine for primary healthcare. Gargle are aqueous solutions used to prevent or treat throat infections. They are usually available in concentrated form with direction for dilution with warm water before use. *Jatropha* was disseminated as a valuable hedge plant to Africa and India by the Portuguese traders. In many parts of the world the ancient systems of medicine have included *Jatropha* as a medicinal herb. *Tulsi* has been evaluated against several diseases and health problems such as immunomodulatory effects. *Mentha* (also known as mint, from Greek *míntha*, Linear B *mi-ta*) is a genus of plants in the family Lamiaceae (mint family). Peppermint oil is excellent for mental fatigue and depression, refreshing the spirit and stimulating mental agility and improving concentration. Honey is a sweet, viscous food substance produced by bees and some related insects. Bees produce honey from the sugary secretions of plants

Key-words: Gargle, *Jatropha*, *Tulsi*, *Mentha*, Honey

Introduction

Herbal medicine is the medicines that include herbs, herbal preparations and finished herbal products which contain active ingredients as part of plants and its combinations. Herbal medicine is the oldest and still the most widely used system of medicine in the world today. It is medicine made exclusively from plants. It is used in all societies and is common to all cultures.

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The origin and history for gargle. In 1520s from Middle French *gargouiller* “to gurgle bubble” (14c), from old French *gargole* “throat waterspout” perhaps from *garg-*, imitative of throat sounds, + **goule*, dialect word for “mouth” from Latin *gula* “throat.” Relates gargled; gargling.

Gargle are aqueous solutions used to prevent or treat throat infections. They are usually available in concentrated form with direction for dilution with warm water before use. They are brought into intimate contact with the mucous membrane of the throat and are allowed to remain in contact with it for a few seconds, before they are thrown out of the mouth. They are used to relieve soreness in mild throat infections.

Gargling is the act of bubbling liquid in the mouth. Vibration caused by the contraction of the perioral muscles in the throat and back of the mouth cause the liquid to bubble and flurry around inside the mouth cavity. It is a medicated liquid used for cleaning the oral cavity and treating mucous membranes of the mouth may contribute to surface softening and

increased wear of dental resins and composite materials.

A warm salt water gargle pulls fluids from the back of the throat, effectively flushing the virus out. Gargling with salt water can soothe a toothache it can also heal mouth ulcers and even provide emergency dental hygiene. A study in japan has shown that gargling water a few times a day will lower the chance of upper respiratory infections such as colds though some medical authorities are sceptical. A good gargle should have the following characters:-

- 1. Good and quick antiseptic action at the dilution it is used
- 2. Non-irritant to mucous membrane, mouth and throat
- 3. Commercially available
- 4. Economically friendly
- 5. Attractive flavour to impart an odour in the mouth

Material and Methods

Ethanollic extract of Tulsi was prepared by cold extraction method. Extract was diluted with an inert solvent, dimethyl form amide, to obtain five different concentrations (0.5%, 1%, 2%, 5%, and 10%). The collected Mint leaves were shade dried and powdered. The dried Mint leaf dusts were soaked overnight in double distilled water (15 g per 100 ml), filtered through loincloth (finecotton cloth). The filtrate was centrifuged at 5000 rpm for 10 min (using a REMI cold-centrifuge).

The supernatant, thus obtained, was filtered again through loincloth and the filtrate collected in sterile polypropylene tubes and frozen at -20 °C. The contents of the tubes were then lyophilized and the resulting lyophilized material therein, herein referred to as the aqueous Mint leaf extract (MLE), was stored at -20 °C until further use. A definite amount of the MLE (the lyophilized material) was always freshly dissolved in double distilled water to give a particular concentration and an aliquot of this solution (not more than 0.5 ml) was fed to rats with the help of a feeding needle. Any leftover of this solution was discarded. The yield of MLE was 8.33±0.45% (w/w)

S/NO	INGREDIENTS	FORMULA
1	Ratanjot (Extract)	8 ml
2	Mint (Extract)	3 ml
3	Tulsi (Extract)	2 ml
4	Honey	5 ml
5	Nacl	0.1mg
6	Colouring Agent	qs
7	Water	qs

Evaluation parameter of polyherbal gargle

Physical properties

In physical evaluation firstly we take 1gm of the drug in a petridish and observed for its organoleptic characters and category.

Stability study

Stability of the product and their components also need to be carried out. Activity of the antiseptic can be decreased over the time. Also stability of the astringent, flavor colors. Are important this can be done by normal stability study or accelerated stability study

Viscosity

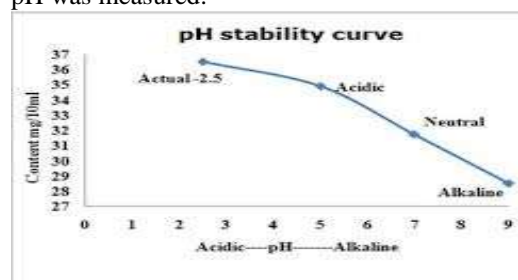
Viscosity of the formulation was determined by brookfield viscometer. The viscosity measurements were done using brookfield dv-ii + viscometer using lv-4 spindle. The developed formulation was poured into the adaptor of the viscometer and the angular velocity increased gradually from 0.7 to 22 rpm.

Homogeneity

The formulations were tested for the homogeneity by visual appearance and by touch.

pH of the solution

The pH meter was calibrated using standard buffer solution. About 1.0 g of the solution was weighed and dissolved in 100.0 ml of distilled water and its pH was measured.



Graph 1:- pH stability

Irritancy test

The solution was gargled and time was noted. Irritancy, erythematic, edema, was checked if any for regular intervals up to 6 hours and reported on the positive.

Test for microbial growth in formulated herbal solution:-

The formulated solutions were inoculated on the plates of agar media by streak plate method and a control was prepared by omitting the solution. The plates were placed in to the incubator and are incubated at 37 °C for 24 hours. After the incubation period, plates were taken out and check the microbial growth by comparing it with the control.

Results and Discussion

A majority of the world's population in developing countries still relies on herbal medicine to meet its health needs and because of this extensive research is now being carried out in this area. The pH of the prepared gargle with the herbal was found to be around 6 which is suitable for oral application because the pH of the mucosa is between 4.5– 6. The spreadability studies showed that formulation have better than towthen compared with the marketed gargles. The stability studies of the various parameters like visual appearance, nature, pH of the formulations showed that there was no significant variation after two months of the study period. The formulation 20% and 60% shows no redness, edema, inflammation and irritation during Test studies. These formulations are safe to use in the mouth. The formulated solutions were tested for the presence of pathogenic microorganisms by culturing it with agar medium. There were no signs of microbial growth after incubation period of 24 hours at 37degrees and having more antimicrobial property as compare to standard.

pH of the solution -The pH of the solution was found to be in range of 5.4 to6.4 which is good for oral mucosa pH.

Homogeneity -All formulations produce uniform distribution of formulation in gargle. This was confirmed by visual appearance and by touch.

After feel - Emolliency, slipperiness and amount of residue left after the application of fixed amount of gargle was found good.

Irritancy test- The formulation shows no redness, edema, inflammation and irritation during irritancy studies. These formulations are safe to use for throat.

Appearance -When formulation were kept for long time, it found that no change in colour of solution.

Accelerated Stability testing - Accelerated Stability testing of prepared formulation were conducted at relative temperature and humidity 45 days

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How to cite this article

Bhardwaj R., Shumailah S., Vishwakarma S., Khan F. Md. and Gupta R.A. (2019). Formulation and Evaluation of Polyherbal Gargle from Ratanjot, *Int. J. Pharm. Life Sci.*, 10(5):6289-6291.

Source of Support: Nil; Conflict of Interest: None declared

Received: 04.04.19; Revised: 11.05.19; Accepted: 28.05.19

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