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FORMULATION AND EVALUATION OF HERBAL MOUTH WASH

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ABSTRACT

Everyone's daily activity is to intake the food for the production of energy which will maintainsthe body integrity. Before and after consuming the food it is mandatory to cleanse the mouth in order to prevent the plaque and bacterial accumulation which are the causative agents for the mouth infections. Mouthwash is an agent which is used to maintain the oral hygiene and healthy gums by the removal of plaque and other deposited substances on the teeth. There aremany chemical based mouthwashes are available in the market, but long term use may cause dry mouth, irritation & staining on the teeth as the major side effects. An alternative measure to overcome these harmful effects can be possible by using herbs which possess antibacterial activity. The present study is designed to formulate Herbal Mouthwash using herbs such as Guava leaf, Clove, Cinnamon and Liquorice. These herbs are evaluated against common oral pathogens. The constituents of these herbs are extracted through maceration method. The extracts of herbs are formulated into mouthwash. The antibacterial activity of the formulationis evaluated by using cup plate method. The results of our work indicates that herbal mouthwash has antibacterial activity against selected strains of bacteria and antibacterial activity was found to be satisfactory.

Key words: Herbal mouthwash, guava, clove, cinnamon, liquorice, antibacterial activity

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INTRODUCTION

Mouthwash is a liquid preparation which is most often used for its deodorant, refreshing and antiseptic properties or for control of plaque. Mouthwash freshens bad breath, reduces plaque and gingivitis as well as fight tooth decay, reduces the risk of cavities and gum disease. Mouthwash may be a solution which is most often used for its deodorant, refreshing and antiseptic properties or for control of plaque. The antimicrobial and antibacterial properties ofmouthwash can prevent the growth of cavity causing bacteria, reduce plaque, fights with bad odor and helps in maintaining gums healthy and strong.[1] Herbal mouthwashes are high in demand, because they act on oral pathogens and relieve the pain instantly and are also less side-effect. Chemical mouthwashes have hydrogen peroxide and chlorhexidine as an immediate whitener, sterilizer and pain reliever of teeth, but they tendto produce discoloration of teeth and may produce side effect, meanwhile they are cost effective. Mouthwashes are used to treat oral disorders like gum bleeding, dental caries, periodontal diseases, mouth ulcers. [2] Herbal mouthwash carries a natural ingredients called phytochemical that consists of desired anti-microbial impact. natural mouthwash will become greater famous they paintings without alcohol, artificial preservatives, taste, or colors [3]. as it consists of herbal herbs that have herbal cleaning and recovery assets to teeth and gums. The objective of the study is to formulate, prepare and evaluate herbal mouthwash by using natural ingredients such as guava leaves powder, clove flower bud powder, cinnamon bark powder, liquorice root powder.

MATERIALS & METHODOLOGY

The collected plant materials are washed, shadow dried and pulverized. The aqueous extract ofeach plant material is prepared by soaking the powdered plant material in distilled water and maintained in incubator at 37ºc for 72 hours. The herbal extracts are filtered using filter paperand liquid extracts are collected.

Fig 1: Maceration

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Fig 2: Incubation

Fig 3: Filtration of guava leaf extract

Fig 4: Filtration of clove flower bud extract

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Fig 5: Filtration of cinnamon bark extract

Fig 6: Extract of Liquorice

Fig7: Extracts after filtration process

Formulation of Herbal mouthwash

Three different formulations of Herbal mouthwash were prepared. Salt solution was made bypreparing 1%w/v solution of salt in water. Then all the extracted ingredients are mixed according to the formulation. 20ml of each formulation is prepared.

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Table 1: Formulations

S. No	Ingredients	F1	F2	F3
1	Guava leaf extract	8ml	4ml	4ml
2	Clove flower bud extract	4ml	8ml	4ml
3	Cinnamon bark extract	4ml	4ml	8ml
4	Liquorice root extract	2ml	2ml	2ml
5	Salt (1%w/v solution)	2ml	2ml	2ml
6	Sodium benzoate	0.2mg	0.2mg	0.2mg

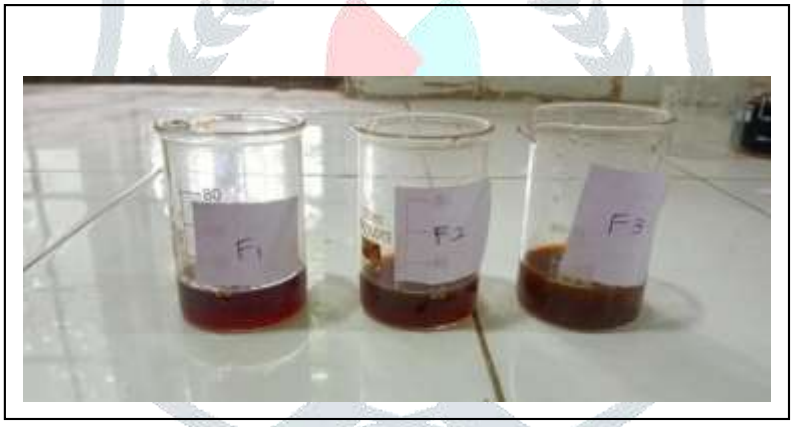

Fig.8: Formulations

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EVALUATION OF HERBAL MOUTHWASH

Colour and odour:

Physical parameters like color and odor were examined by visual examination [4]

Taste

Taste of the herbal mouthwash is examined physically.

pH

pH of prepared herbal mouthwash was measured by using digital pH meter. The pH meter was calibrated using standard buffer solution about 1 ml of mouthwash was weighed and dissolved in 50ml of distilled water and its pH was measured.

In-vitro antibacterial activity

In vitro antibacterial activity was performed on isolated colonies of *staphylococcus aureus* and*streptococcus mutans*. The cup plate method was used for determining the zone of inhibition. The strains *of staphylococcus aureus* and *streptococcus mutans* were inoculated in agar plate.The plates were dried and 3 wells were made with the help of borer. The prepared mouthwashformulations were loaded in the respective wells. The agar plates were kept undisturbed to allow passive diffusion of herbal mouthwash into the agar culture medium. Then the plates were incubated at 37^0C for 24 hours. Then the zone of inhibition was calculated in mm. [5, 6, 7]

RESULTS AND DISCUSSION

Table 2: Results

Formulations	Color	Odor	pH	Taste
F1	Brown	Slightly pungent	6.03	Sweet and slightly pungent
F2	Brown	Slightly pungent	6.18	Sweet and slightly pungent
F3	Brown	Slightly pungent	6.38	Sweet and slightly pungent

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All the prepared formulations are in brown colour and have slightly pungent odour. Taste of all the formulations is Sweet and slightly pungent. Unlike color, odor, and taste the preparedformulations have different pH**.** F1 have pH of 6.03, F2 have pH of 6.18, and F3 have pH of 6.38.

Fig 9: pH of formulation F1

Fig.10: pH of formulation F2

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Fig 11: pH of formulation F3

Table 3: Results of In vitro antibacterial activity

Organism	**Zone of inhibition**		
	F1	F2	F3
Staphylococcusaureus	12mm	10mm	9mm
streptococcus mutans	11mm	10mm	8mm

The antibacterial activity was evaluated by cup plate method or agar diffusion method for different formulations of mouthwash. The prepared formulations have shown different zone of inhibition. *For Staphylococcus aureus,* F1 has shown 12mm zone of inhibition, F2 has shown 10mm of zone of inhibition, F3 has shown 9mm of zone of inhibition. For *streptococcus mutans* F1 has shown 11mm zone of inhibition, F2 has shown 10mm of inhibition, F3 has shown 8mm of zone of inhibition. These results showed that the formulated herbal mouthwash has significant antibacterialactivity and the present formulations are able to inhibit bacterial growth in oral cavity.

Fig 12: zone of inhibition

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DISCUSSION

A simple technique of maceration is performed and three formulations of Herbal mouthwash were prepared in present study. Herbal mouthwash was formulated, evaluated and studied. Herbal mouthwash was prepared by using different quantities of guava leaf extract, Cinnamonbark extract, Clove bud extract, Liquorice root extract, 1% w/v salt solution and Sodium benzoate. Three different formulations F1, F2, F3 of Herbal Mouthwash were prepared and Subjected to evaluation studies. The herbal mouthwash was formulated and evaluated for parameters such as Color, Odor, Taste, pH, Zone of inhibition and was found to be satisfied with all the required characterization. Thus, the developed herbalmouthwash was used for healthy gums. It was found that all formulations F1, F2 and F3 shownapproximately same results. The F1 formulation have more zone of inhibition compared to other formulation.

CONCLUSION

A systematic approach involving preparation and evaluation of herbal mouthwash using different formulation was attempted. The present study was attempted to make the herbal mouthwash using suitable base to form a solution. The evaluation studies of the herbal mouthwash such as Color, Odor, pH, Taste, Bacterial growth inhibition, were conducted which projected the satisfactory results. The developed formulations can be used as an effectivemouthwash for healthy and fresh oral cavity. Herbal mouthwash responded effectively and helped in freshening and reducing oral disorders.

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