

# Evaluation and Development of Herbal Based Lozenges for Cough

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**Abstract:- Our research represents to identify, evaluation and proper manufacturing of the herbal based lozenges for cough by using combination of calamansi, ginger, miracle berry fruit (*Synsepalum dulcificum*) belonging from the family Sapotaceae and manuka honey as we know manuka honey comes from other country. The herbal based lozenges were formulated properly to provide proper relief from the cough symptoms by using natural herbal ingredients with potential and therapeutic properties. Our research involved with the proper and appropriate preparation of the lozenges we followed by evaluation, identification and analysis of their physical characteristics, organoleptic properties and in vivo dissolution behavior. Our results gives that the herbal based lozenges exhibited desirable attributes and demonstrate a good promising potential for cough relief. For good efficacy and safety we did the clinical trial.**

## I. INTRODUCTION

As we know Cough is very common symptom of various respiratory condions such as respiratory infections and can significantly impact with an individual's quality of life. Marketed cough remedies often contain many synthetic ingredients that may have more side effects. Our herbal based formulations provide an good alternative approach of less side effects, by utilizing natural substances with potential therapeutic properties. As we used calamansi, ginger, miracle berry fruit and manuka honey are known for their antimicrobial, antiinflammatory and soothing properties totally making them suitable candidates for a cough-relief product. Our research study purpose to evaluate and identify the feasibility by using these herbal ingredients in the development of herbal based lozenges for cough relief.

## II. METHODS WITH THE MATERIALS

The materials were collected by lab as calamansi came from philippines, miracle berry fruit came from South Africa, Manuka honey came from New Zealand and the other products like collected by locally.

### ➤ *Methods of Preparation*

First take mineral water 117.5ml and 235ml sugar into the very neat and clean pot. after take 5ml of calamansi into the pot. The calamansi has lot of vitamin C. After add the 25ml of manuka honey and 2.5ml ginger into the mixture. After add 2.5ml miracle berry fruit. After turn on the heat and stir the mixture very well once it will be starts in simmer. when once it will be simmering put the stove on very low heat and after continue simmering 17 to 19minutes, stirring regularly along the way. when line a baking sheet with parchment paper then cool off the pot. after liquids are like syrupy, thick and ready to pour. after on to the parchment pour little dots one at a time. after when covered properly the dots with powdered sugar to keep them from sticky together be sure for cover each lozenge evenly. after properly transfer the cooled lozenges on a drum. when there will be throat pain then it will be use.

## III. RESULTS AND DISCUSSION

Our research sensory evaluation indicated that the lozenges had a pleasant taste, aroma and texture, making them potentially very well accepted by users. In vivo dissolution studies we did with a sustained release of active ingredients, suggesting a prolonged contact time with the throat mucosa, which is very beneficial for alleviating cough symptoms.

Our formulated herbal lozenges are the combination of calamansi, ginger, miracle berry fruit and manuka honey in the lozenges offers a good synergistic effect due to their individual therapeutic properties. As calamansi is rich in vitamin C and possesses antioxidant activities that can support the immune system. The ginger has antiinflammatory and

antimicrobial properties, which may help reduce inflammation and fight against infections. The miracle berry fruit contains a glycoprotein called miraculin, which can modify well taste perception, providing a very soothing sensation to the throat. Manuka honey is known for its antimicrobial activity and has ability to promote wound healing.

#### ➤ *In vivo Release*

In this research we used capsaicin induced coughing in mice test method in this test only three mice are available that's i divide into three groups Group1 Control Group Group 2 Standard group i use Dextromethorphan chocolate(alex chocolate)5mg/kg Group 3 we used our formulated chocolate. First i take them 500ml glass chamber each of them and take weight wise. After we positioned them upside down and i sprayed nebulized capsaicin solution 100µmol/l for 10sec. after we recorded the latency period of cough frequency in 2min. After 24hr recovery these mice administered as Group 2 Dextromethorphan chocolate(alex chocolate) 5mg/kg after our chocolate and Group 1 we not administered any drug. By this research we recorded the coughing totally stop by our formulation with 4days as it is Group 3 and Group 2 Standard Dextromethorphan chocolate 5days and control group as Group 1 not stop coughing.

Our research formulation of herbal based lozenges presents a promising approach for cough relief, by utilizing natural ingredients with potential health benefits. However further research is required to evaluate their efficacy and safety in clinical settings. The clinical trials should be conducted to proper assess their effectiveness in reducing cough frequency and severity as well as any potential side effects or interactions with other medications. Additionally, we did stability studies should be performed to ensure the shelflife and quality of lozenges during storage.

#### IV. CONCLUSION

Our research evaluation and manufacturing of herbal based lozenges for cough by using calamansi, ginger, miracle berry fruit and manuka honey demonstrated very good results. The lozenges proper exhibited desirable physical characteristics and organoleptic properties, as indicating their potential as a natural remedy for cough relief. Further research we recommended to validate their efficacy, safety and stability, leading to potential commercialization and availability for individuals seeking natural alternatives for cough management.

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publications with 3individual patents with he guided in 6researches has 5awards as Asian Best Scientist Award2023 by World Research Council. In this research Shibbanjan Paul Roy guides Mr.Kamal Deka M.Pharm(Pharmaceutics)-Former Principal of Crescent Institute of Pharmacy now Assistant Professor of Royal School of Pharmacy under Assam Royal Global University and Ph.D pursuing from 2021 has more than 8research publications with 1patent and 3book chapters and Mr. Shyam Prakash Rai a Young Scientist has 6research publications with 1individual research publication. Mr. Kamal Deka and Mr. Shyam Prakash Rai performed for the practical and others work and note the reading under Guide-Mr. Shibbanjan Paul Roy's guidance and observation.

#### REFERENCES

- [1]. Kolekar, Yogesh & Mulani, Sajid & Tamboli, Firoj & Harinath, N. & Misal, Ashish. (2021). FORMULATION AND EVALUATION OF PEDIATRIC HERBAL CHOCOLATE. 8. 458-462.
- [2]. Dwivedi, Mahendra & Jha, K & Pandey, Swati & Sachan, Ankush & Sharma, Himanshu & Dwivedi, Shloke. (2023). Formulation and Evaluation of Herbal Medicated Chocolate in Treatment of Intestinal Worms and Related Problems. 11. 2022.
- [3]. Kupkar, Mayuri & Kusarkar, Priyanka & Dudhgaonkar, Trupti. (2022). A Study on Formulation and Evaluation of Herbal Chyawanprash Chocolate. Research Journal of Pharmaceutical Dosage Forms and Technology. 123-126. 10.52711/0975-4377.2022.00019.
- [4]. Paul Roy, Shibbanjan & Deka, Kamal & Prakash Rai, Shyam. (2023). ~ 1210 ~ The Pharma Innovation.
- [5]. Paul Roy, Shibbanjan & Deka, Kamal & Prakash Rai, Shyam. (1998). By using arabian artemesia sieberi and Lilium candidum a novel formulation and development of herbal based ointment for deep burn healing.
- [6]. 6.Paul Roy, Shibbanjan & Deka, Kamal & Prakash Rai, Shyam & Mishra, Pratyush. (2023). SHIBANJAN PAUL ROY ET AL FORMULATION OF A NOVEL HERBAL BASED SHAMPOO FOR HAIR FORMULATION OF A NOVEL HERBAL BASED SHAMPOO FOR HAIR SHIBANJAN PAUL ROY ET AL FORMULATION OF A NOVEL HERBAL BASED SHAMPOO FOR HAIR Introduction.
- [7]. Sarma, Satyabrat & Paul Roy, Shibbanjan & Prakash Rai, Shyam. (2023). The Pharma Innovation Journal 2023; 12(3): 4595-4603 Novel formulation and evaluation herbal based lotion for the antimicrobial and antifungal properties.
- [8]. Paul Roy, Shibbanjan. (2023). FORMULATION AND EVALUATION A NOVEL HERBAL BASED FACE WASH BY USING HYDNORAAFRICANA (SUB FAMILY-HYDNORACEAE) FRUIT EXTRACT.

- [9]. Cheong, Mun Wai & Zhu, Danping & Sng, Jingting & Liu, Shao & Zhou, Weibiao & Curran, Philip & Yu, Bin. (2012). Characterisation of calamansi (*Citrus microcarpa*). Part II: Volatiles, physicochemical properties and non-volatiles in the juice. *Food chemistry*. 134. 696-703. 10.1016/j.foodchem.2012.02.139.
- [10]. Patel, Seema & Cichello, Simon. (2013). Manuka honey: an emerging natural food with medicinal use. *Natural Products and Bioprospecting*. 3. 10.1007/s13659-013-0018-7.
- [11]. Shi, Yeu-Ching & Lin, Kai-Sian & Jhai, Yi-Fen & Lee, Bao-Hong & Han, Yifan & Cui, Zhibin & Hsu, Wei-Hsuan & Wu, She-Ching. (2016). Miracle Fruit (*Synsepalum dulcificum*) Exhibits as a Novel Anti-Hyperuricaemia Agent. *Molecules*. 21. 140. 10.3390/molecules21020140.
- [12]. Paul Roy, Shibbanjan. (2023). Role of *Hydnora africana* (Sub. Family-Hydnoraceae) root extract for antidiarrhoeal activity.