

Formulation of Topical Gel Containing *Cymbopogon Citratus* Oil & Evaluation of its Antimicrobial Activity

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Abstract - Since ancient era, herbal- or plant-based medicines has been used for the prevention, cure & mitigation of diseases. The volatile oil obtained from the fresh leaves of the plant is one of the most important essential oils in the food, cosmetics, and pharmaceutical industries. Considering these advantages, herbal gel containing *Cymbopogon citratus* oil was prepared. Solvent extraction method was used for extraction of essential oils. After extraction, some of physicochemical properties of the extract were determined. Then topical gel was prepared by taking carbopol 934, triethanolamine methyl and propyl paraben, propylene glycol and three different measured amount of *Cymbopogon citratus* oil was incorporated to gel and labeled as F1, F2 and F3 and evaluated for physical parameters and *in-vitro* antimicrobial activity against *E.coli*. The formulation F3 shows best formulation for antimicrobial activity than F1 and F2.

Index Terms - *Cymbopogon citratus* oil, antimicrobial activity, carbopol 934.

I. INTRODUCTION

Since ancient era, herbal- or plant-based medicines has been used for the prevention, cure & mitigation of diseases and time to time more and more herbal constituents of these natural sources are get enhanced. In research scientist have been proved newer compounds from the herbal to treat many infectious diseases. Reports shows that most of the medicinal plants possess antimicrobial, antioxidant, and anti-inflammatory properties, which has been used in the prevention of many infectious diseases, and also and thus beneficial for the society¹ The current scenario of infectious diseases emphasis that there has been an lighten increase in emerging infectious diseases.² The main task toward scientist is the development of resistance to the antibiotic in clinical use. Therefore, development a natural formulation is best option to act

against the microorganisms develops skin diseases. Although a lot of pharmacological investigations have been showed that lemongrass oil *Cymbopogon citratus* belonging to family has /anti-amebic³, antibacterial activity⁴, ant-filarial Activity and antifungal Activity⁵ antimycobacterial Activity⁶ Antinociceptive Effect⁷. The volatile oil obtained from the fresh leaves of the *Cymbopogon citratus* is one of the most important essential oils in the food, cosmetics, and pharmaceutical industries. Gels are defined as substantially dilute cross linked system, which exhibits no flow when in the Steady state. Topical gel preparation has remained one of the most popular and important pharmaceutical dosage form. As a result the therapeutic effects can be avoided or minimized. Example of drug commonly prepared in topical gel from includes gastrointestinal Irritating non-steroidal anti-inflammatory drugs and antibacterial, Antifungal. For topical treatment of dermatological disease as well as skin care, a wide variety of vehicles ranging from solids to semisolids and liquid Preparations is available to clinicians and patients. Within major group of semisolid preparations, the use or transparent gels has expanded both in cosmetics and in pharmaceuticals preparations. Therefore, the present study was aimed to develop and evaluate topical Gel containing *Cymbopogon citratus* oil & Evaluation of its antimicrobial activity.

II. CHEMICALS AND REAGENTS

Carbapol 934, triethanolamine, propylene glycol, were obtained from Loba Chemie Pvt. Ltd, Nagpur, India. Methyl Paraben, Propyl Paraben were obtained from Samar Chemical Pvt. Ltd, Nagpur, India. Glycerin was obtained from Apurva Chemicals, Gondia, India.

III. SAMPLE COLLECTION



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