



Formulation and evaluation of antiacne cream by using Clove oil

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ABSTRACT

Acne is a common skin problem associated with the microbial infection and needs antimicrobial agents for the treatment. Herbal products containing essential oils as antimicrobial agents are undoubtedly a growing trend. Clove oil is reported to have antimicrobial activity against acne causing microorganisms such as *Propionibacterium acnes*, *Staphylococcus epidermidis*, *Staphylococcus aureus*, and *Candida albicans*. Hence the present study was undertaken with the aim to formulate and develop Antiacne cream by using Clove oil. The essential oil of clove was extracted by steam distillation method and cream formulations were developed with various concentrations of Clove oil; all the formulations were evaluated as per Bureau of Indian Standards guidelines (BIS) guidelines and for antimicrobial activity against the microorganisms responsible for acne by agar well diffusion technique. Also all the Antiacne cream formulations were subjected to stability studies and subjective evaluation of panel of human volunteers. The results showed that the Antiacne cream (C-6) containing clove oil is effective against microorganisms responsible for acne. Clove oil is effective Antiacne agent hence can prove to be beneficial for incorporating in Antiacne preparations.

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1. Introduction

Acne is a chronic inflammatory disease of the pilosebaceous unit. It is characterized by the formation of comedones, papules, pustules, inflamed nodules, superficial pus, filled cysts and in extreme cases canalizing and deep scarring [1]. Acne develops on those areas where sebaceous glands are most numerous: the face, scalp, neck, chest, back, upper arms and shoulders [2]. The bacteria *Propionibacterium acnes*, *Staphylococcus epidermidis* [3], *Staphylococcus aureus* [4], the fungus *Candida albicans* are almost commonly present in the pustular contents of the acne [5]. Acne is common skin problem associated with microbial infections. For its treatment antimicrobial agents are required.

Various antimicrobial agents are used in cosmetic preparations from natural and synthetic sources. Normally synthetic materials are used because of low cost and strong antimicrobial property but synthetic material may give adverse effect to human and environment [6]; also faith of consumer on herbal products is growing

fast, hence there is a need to find out effective natural antimicrobial agents.

Essential oils have a wide application in folk medicines, food flavouring and preservation as well as in fragrance industries. The antimicrobial properties of essential oils have been known for many centuries [7]. In recent years, a large number of essential oils and their constituents have been investigated for their antimicrobial properties against some bacteria and fungi [8,9]. It is reported that essential oils provide a gentle and inexpensive way of treating acne, clearing infections and healing acne scarring [10,11].

India has a rich heritage of traditional remedies. In India Spices are used extensively for adding aroma and taste to food. They are used widely in Ayurvedic preparations, flavour and perfume industries.

Clove consists of dried flower buds of *Eugenia caryophyllus* (Thunb.), (Syn. *Syzygium aromaticum* (Linn.) Merrill and Perry), belonging to family *Myrtaceae* [Fig. 1, Fig. 2].

Clove contains about 15–20% of volatile (essential) oil; 10%–13% of tannin (gallotannic acid), resin, chromone and eugenin. The essential oil of Clove bud contains eugenol (about 70–90%),

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