

## A New Approach for the Topical Treatment of Acne Vulgaris by Clindamycin HCl Supported on Kaolin

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### Abstract:

*Background:* the treatment of acne vulgaris should act against hyperkeratinization, inflammation, bacterial proliferation and sebum production. At the present, there is no topical anti-acne medication that acts against all of the above pathophysiological features of acne. The acne vulgaris response to the clindamycin is better than other available antibiotics. Kaolin by itself can be useful in sorption of bacteria, pus, toxins and free fatty acids.

*Aim of the study:* The aim of this work is to study the role of the adsorption – desorption process in prolonging the action of the clindamycin drug .

*Patients and Methods:* adsorption of clindamycin HCl from 70% ethanol solution on different amounts of kaolin as adsorbent was studied using UV-spectrophotometry technique at 210nm. Desorption process of the adsorbed clindamycin HCl from kaolin surface was also studied.

*Results:* A stable formula consisting kaolin, clindamycin HCl and 70% ethanol aqueous solution has been prepared for the treatment of acne vulgaris.

*Conclusion:* The formula provides prolonged action accompanied with a certain mechanism of clindamycin adsorbed on kaolin upon application on the skin leading to fairly good results in the treatment of acne vulgaris. The mechanism of action of the formula is based on the adsorption-desorption processes of the antibiotic on the clay. *Keywords:* Clindamycin; kaolin; adsorption; acne vulgaris

### Introduction:

A large number of people of all over the world especially teenagers are suffering from acne vulgaris. It is a chronic inflammatory condition, in which excessive sebum secreted by over active sebaceous glands is unable to escape from the hair follicles<sup>(1)</sup>. The increase and abnormal keratinization at the exit of pilosebaceous follicles obstructs the flow of sebum; this state will let the bacteria, propionobacterium acne, to play a pathogenic role. propionobacterium acne is a normal skin commensal; it colonizes the

pilosebaceous ducts. breakdown the triglycerides releasing free fatty acids, produces substances chemotactic for inflammatory cells and induces the ductal epithelium to secrete pro-inflammatory cytokines<sup>(2)</sup>. Hence, the treatment of acne vulgaris should act against hyperkeratinization, inflammation, bacterial proliferation and sebum production. At present, there is no topical anti- acne medication that acts against all of the above pathophysiological features of acne<sup>(3)</sup>. The combination of two or more medications may be necessary to

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