Thesis Title The Development of Bioadhesive Films for Oral Diseases

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Date of Graduation 25 May B.E. 2536 (1993)

ABSTRACT

The bioadhesive films containing 4% clotrimazole and the bioadhesive films containing 0.4% triamcinolone acetonide were developed by using different viscosity grades of hydroxypropyl methylcellulose (HPMC, Methocel®) and poly (ethylene oxide) (Polyox®) as the hydrophillic drug matrix (drug reservoir). The films were prepared by : simply dissolving the polymer and the active drug in the cosolvent system of distilled water-alcohol, the solution was poured onto the flat-glass plate and the solvents were evaporated away in the hot-air oven at 40°C until the dried film was obtained. Various properties of the films were studied in details : drug content uniformity determination, adhesive duration determination both *in vitro* and *in vivo* studies, the *in vitro* release rate of drug from the film determination, the *in vitro* studies on the effectiveness of clotrimazole films against *Candida albicans* by viable cell count method and by agar diffusion method, the *in vivo* effectiveness evaluation of clotrimazole film in denture wearing pateints, and the evaluation of the pateints' acceptability in this new dosage form.

It was found that the Methocel®-bioadhesive films were in the form of sustained release dosage preparation. The active drug could be released slowly from

the matrix film. The *in vitro* adhesive duration of the prepared films were in the range between 4 to 8 hours or more depending on the polymer types, the viscosity grades and the weight of polymer per area of the film. The clotrimazole films were also effective in destroying fungal microorganism in denture stomatitis pateints with the improvement in the clinical signs after the end of the treatment peroids. The bioadhesive films were well acceptable by the denture wearing pateints.