

CHAPTER I

INTRODUCTION

1.1 Statement and significance of the problem

Nowadays herbs and natural substances are widely used in terms of health care and therapeutic as well as beauty. There were important role in order to meet the current popularity of consumer and the development of valuable natural products used to benefit human health, used to make medicines, food supplements, cosmetics including various skin care products.

The majority of skin infections caused by bacteria such as *S. aureus* causing furuncle and sores blister. Beta-Hemolytic Streptococci group A (GAS) causing sore throat and dermatitis. Methicillin Resistant *Staphylococcus aureus* (MRSA) is a major cause of infections in hospitals such as patients with wound infection, scald and burn. *P. aeruginosa* is opportunistic pathogens is the number one leading cause of infections in hospitals, such as scald, wound infection, burn, and pressure ulcers. *E. coli* is the leading infectious cause of the disease of all systems in the body including infections in the hospital [1].

FDA (Food and drug administration) indicated that the many disinfectants and antibiotics that one of all drugs in Thailand were the highest produced and imported of antibiotic totaled about 20,000 million baht, or about 20% of all drugs [2].

Unnecessarily of using antibiotic cause infection resistance. Currently the rate of drug-resistant infection reach to 25-50% consequently the treatment of major infectious diseases are difficult and may have to buy more technology from abroad. Therefore, research must invent new drugs all the time. Moreover, if the invention of antibiotics were slow, it may cause increasing death from drug-resistant infections [3].

Bees are social insect that are very versatile for human. In agriculture, bees help to pollinate the plants to reproduce more. Products derived from bees in the beekeeping industry such as honey, bee pollen, propolis, royal jelly, beeswax and bee

venom are very valuable and can be processed to a variety of value-added products for health and beauty. The beehive products are divided into two groups: the products that bees imported raw materials from outside the hives such as honey, bee pollen, propolis and the products that bees produced themselves such as royal jelly, beeswax and bee venom.

There are many researches focusing on various bee products mentioned above, but very few focused on the throw away beehives.

Therefore, this research was to determine the antimicrobial activity of beehive extracts and developed into topical antimicrobial gel.

1.2 Objective

To develop new product from the beehive extract that can be used for topical antibacterial