

# Development Process for Thai Traditional Medicines

Sittichai Daengprasert, Narueporn Sutanthavibul, and Achara Chandrachai

**Abstract**—Traditional medicines have become alternative choices for treatment of diseases by consumers. It has lesser side effects and cheaper than modern medicines. It is also easily available in the market. The objective of this paper is to study the process development of traditional medicines and herbal medicines. Literature review methodology has been used to search the prototypes for innovation process development of traditional medicines suitable for industries in Thailand. The result showed that none of the prototypes were suitable for Thailand industries. Therefore, for future research, the researchers must present an innovation of new products development of traditional medicines that is suitable for Thailand and research from existing successful businesses from other countries to adapt the context of Thailand.

**Index Terms**—Innovation, Thai Traditional Medicines, New Product Development

## I. INTRODUCTION

Thailand is a developing country which does not have much role in pharmaceutical industries. From the survey of Thai Drug Industry during 1995-2001, less than one percent of the total pharmaceutical industries have the budget for research and development of medicines (The research institute of Traditional Thai Medicine). Most of the patent medicines are being developed in USA or Europe as they have large budget from investors for research and development and latest technologies causing in high price of medicines in the market. The rate of importation of the generic medicines from abroad i.e. India and China are increasing rapidly in Thailand, which are sold at high prices in the market. In Thailand, there are not much pharmaceutical industries established because it requires large amount of investments. Government Pharmaceutical Organization (GPO) produces generic medicines at low prices, which increases the level of competitions in the prices among pharmaceutical manufacturers.

Thailand's heritages have deep knowledge regarding Thai Traditional Medicines (TTM) as it has been handed over from generations to generations by Thai ancestors like Ayurvedic medicines in India and Traditional Chinese Medicines (TCM) in China. Traditional medicines and herbal medicines are becoming alternative choices of medicines for treatment because the consumers strongly believe that traditional medicines and herbal medicines are much safer and cheaper than modern medicines as modern medicines

have many side effects. However, according to the literature reviews of Thai Traditional Medicines are not much successful due to pharmaceutical industries lack of many reasons such as in the field of production which do not have latest technologies, raw materials are not of good qualities, no formulations, quality control and quality assurance do not meet the standard criteria and there are no institutions supporting research and development. However, the government is promoting the innovation process development of Thai Traditional Medicines by providing funds to the manufacturers which will ultimately increase economic conditions in Thailand.

## II. METHODOLOGIES

### A. Literature Review

Literature review focus on the process innovation to understand the way of creating prototype of actual production process of new product. After literature review, documents review and research studies will be done by emphasizing the data that has been integrated for different programs. Traditional medicines have many definitions in context of Thailand. Many researchers have tried to explain the correct definition of traditional medicines by creating models such as Innovation process means activities that can be able to use with every type of industry and procedures such as product development, product distribution, sales, purchase orders and services e.g. information technology industries and medicines insurance (Craig and Yetton, 1992). Innovation process is necessary to separate technological procedures from Innovation of Management Organization (Edquist et al, 2001) and etc. The researches have concluded that innovation process is development of production process and services in the field of technologies and management organization for more efficiency and effectiveness and in investment, time and satisfaction.

### B. New Product Development Process

It is the process that is complicated and there are research studies are composed of many factors and prototypes which are proposed in many formats.

### C. Drugs Development Process

Development of drugs especially new drugs have difficult and complex process, which requires deep knowledge and good teamwork of various departments to work together and is risk-taking (Stein 2003). Previously medicines were registered by luck or coincidence which obtained success. Anyway, systems and principles of procedures have developed which not only give importance to procedures and chemical properties but also gives more importance to treatment of diseases. There are many research studies which

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Sittichai Daengprasert is with Business Administration, Thammasat University, Thailand (e-mail: daengprasert.s@gmail.com).

Narueporn Sutanthavibul is with Department of Pharmaceutics and Industrial Pharmacy, Chulalongkorn University, Thailand.

Achara Chandrachai is with Department of Commerce, Faculty of Commerce and Accountancy, Chulalongkorn University, Thailand.

explain the phases of procedures of new product development (Figure 1).

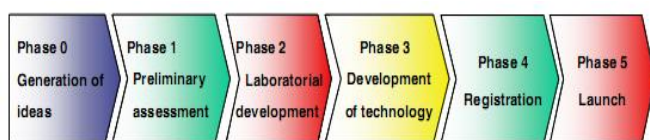


Fig. 1. Procedures of new product development.

From the steps of new drugs development and new chemical entity, many molecules are screened but only one will be left for registration (Kulmn J, 1977). Thus this proves that it is very difficult to discover and screen new drugs and it is time consuming in average 17 years and each drug costs approximately US\$ 1,000,000 (US FDA, 2009). Thailand does not have potential to discover new drugs due to lack of technologies, research tools and finance investment.

#### D. New Product Development for Traditional Medicines

In some cases, drug discovery is not necessary to search from new substances but can also be discovered from raw materials of traditional medicines from herbs (Dhillion et al, 2003, Baluna and Kinghorn, 2005) e.g. traditional medicines from Ayurveda's of India (Mukherjee and Wahile, 2006). WHO have mentioned that drugs from traditional herbal medicines are the primary healthcare for more than 80% of the world populations. Therefore, developed countries are interested to search new chemical entity (NCEs) from traditional medicines from India and China, which are highly safe and efficient.

Thai medicines formulations are handed over from generations to generations by Thai ancestors. From past few years consumers confides in using traditional medicines in treatment because it is safer and cheaper than modern medicines. Unfortunately, industrialization in Thailand is not strong enough to support the discovery of new product of traditional medicines.

#### E. Context of Thailand

The Original Drug invented for the first time will be protected as a patent for 20 years, by manufacturers from developed countries such as from United States and Europe. Thus, Thailand does not have potential to produce original drugs and have to import drugs at high prices from abroad such as US, Germany, Switzerland and France. After patent expires, Thailand imports generic medicines mainly from India and China. Pharmaceutical industries import 95% of raw materials to produce medicines using simple technologies. The domestic pharmaceutical company GPO, who has the privileges to sell medicines to government hospitals, is weakening other pharmaceutical companies leading to many competitors and lose-making businesses (Economic data of China, 2006).

Thai government is promoting and supporting the use of herbal traditional medicines, as Thailand has natural resources of herbs. Herbal medicines have lesser side effects and are much cheaper than modern medicines. Thai traditional and herbal medicines are being added in the list of Essential Drug List 2008. The main problem that the

manufacturers are facing is the difficulty in registration of traditional and herbal medicines at Thai FDA.

TABLE I: CONCLUSION OF PROTOTYPE FOR NEW PRODUCT DEVELOPMENT

Prototype/ Principle	Procedure/ Process
Bean and Radford (2000)	Is divided into 3 groups according to strategy levels of activities of product development such as strategy level of company, operation level and level of interacting with the customers directly.
Koen et al. (2002)	Is divided into 3 main parts accordingly to the differentiation of innovation process such as firstly before beginning development, is a part of uncertainties and predictions (Fuzzy Front-End), secondly product development and market launch.
Cooper (2001)	Is divided into 5 steps according to prototypes Stage-Gate such as evaluation of primary concept, assessment of ideas in details, product development, examining products and production and market launch.
Crawford and Di Benedetto (2003)	Is divided into 5 steps i.e. strategic planning for new products, creating concept, concept assessment, product development and market launch.

### III. CONCLUSION

The literature review in the field of research and development of new medicines, are often done in the developed countries. This is because of the use of advanced technologies, high investment, and long period of time to develop medicines that are not suitable for developing country like Thailand. Therefore the literature for traditional medicines development showed that traditional medicine is widely used in health system around the world and must be developed in the scientific method into the industrial level. Also, most of manufacturers are small and medium Enterprises or SMEs in Thailand which are not yet ready to invest in the development of herbal medicines or traditional medicines like China and India that have developed herbal medicine for a long time and have good support from the government. However, the development of new products is highly essential to development and public health security. For future research, the researchers must present an innovation of new products development of traditional medicines that is suitable for Thailand, and research from existing successful businesses from other countries to adapt the context of Thailand.

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**Sittichai Daengprasert** is Master of Business Administration, Thammasat University. PhD candidate, Chulalongkorn University



**Narueporn Sutanthavibul** is with Department of Pharmaceutics and Industrial Pharmacy, Chulalongkorn University



**Achara Chandrachai** is with Department of Commerce, Faculty of Commerce and Accountancy, Chulalongkorn University