



## Ancient Thai Northeastern( Esarn ) Palm Leaf Scriptures toward History and Knowledge Dissemination

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### ABSTRACT

This research is a descriptive and explorative study which is aimed at the investigation of collections, preservation, composition and indications of Thai palm leaf scriptures as it pertains to artistry and historical research. This topic involves study of hundreds of Thai folk medicinal formulations and library documents housed in temples dating back over 600 years. The research team of Mahasarakham University committee is comprised of Artists, Pharmacists, Biologists, Thai folk herbalist and editor. The complete scriptures contained 5 volumes and the languages used in the scriptures were Thai Noi, Tham Esarn, Khmer and Thai Local folk languages. Each traditional medicinal formula was composed by local Thai folk herbalists and transferred in written language on palm leaves and were kept within the temples in Thailand. Thai monks had preserved these documents in ornate handcrafted containers and kept them as a resource for education in order to treat various ailments of local people. This historic library with formulations were created over a period of hundreds of years before the advent of modern medicine and some of the formulations had been tested in comparative clinical trials. The results present not only the art of herbalism but the art of preservation and reveal effective therapeutic formulations from Thai palm leaf scriptures.

**KEYWORDS :** Palm leaf scriptures, Therapeutic medicines, Folk Herbalists, Thai traditional herbal remedies, Thai craftsmanship

### Introduction

#### Current investigations into the History

In the past, North eastern (Esarn) Thai –Lao ethnic group named as “Lao Esarn people” had their own culture of recording documents through the use of palm leaf scriptures. The languages were Thai Dham, and Thai Noi which were written on palm leaves especially for Buddhist texts. The contents were described in local Thai Buddhism teaching areas of Dhamma named Tripitaka which were divided into 3 parts in the Buddhist scriptures such as Thammakatha (Buddha’s story) Trimkta allegory, Panya shadok (wisdom allegory) and folklore literatures and medicinal palm leaf scriptures. Northeastern Esarn people believe in the holy and sacred. They installed the holy scriptures using palm leaves and written materials to preserve their local wisdom knowledge and education and transferred these communications to related community contexts. Esarn local people were able to preserve and provide the perfect and safe environment in which all scriptures are installed in a Thai monastery (Wat). A Thai Esarn monastery normally consist of sermon hall, monk dormitory, Buddhist pavilion, parsonage and Tripitakka (Buddhist scripture hall).



The placement of Tripitakka hall was normally located upstream on a water source and created a pleasant and contemplative atmosphere for meditation with a peaceful, cooling, comfortable area perfect for learning and studying of monks and neophytes. Tripitakka were built and surrounded by a small reservoir inside Thai monastery.

Earth was excavated from the ground of monastery hall construction and placed in order to elevate the height of Tripitakka hall at a level higher than other buildings. E-san people believe that these areas are holy, sacred and secret places to install and preserve their important Buddhist documents. They also believe that the waters from Tripitakka hall are sacred and no-one is allowed to bring their animals or contaminate the reservoir by any means. The community people could use this purified water for their community’s daily consumption.

This reservoir besides its function as source for sacred water consumption the monastery reservoir would also be beneficial to increase and maintain a stability of humidity for preservation of palm leaf scriptures and also provide a pleasant atmosphere and environment inside the monastery in order to enhance the duration of pleasurable time for studying for monks and neophytes in the monastery. Palm leaves have a tendency to be fragile structures and easily broken in the drought conditions of Northeastern (Esarn) area in Thailand. Therefore the allocation of palm leaf scriptures to a humid atmosphere was established for preservation and sustainability. It also can prevent the conflagration or destruction of the structure of palm leaf scriptures from rodents, termites, insects, ants, etc. Tripitakka hall also housed and represented Thai local Buddhist wisdom for E-sarn communities and a past history which recorded all Dharma knowledges and Buddhism for the preservation of Esarn culture and society.

#### History of Transferring and Preservation of Ancient Thai Palm Leaf Scriptures

Ancient Thai Palm Leaf Scriptures are derived from the advents of Buddhism and successive rulers and provided a recording method used by monks for herbal traditional medicine. This research presentation explores the methods and materials used in the transfer of oral local herbalism discovery and written scripts safeguarded in sacred libraries. The Faculty of Fine and Applied Art and Faculty of Public Health, Mahasarakham University has been investigating and translating from Thai Noi, Thai Dharm, Khmer, and ancient Thai northern languages to contemporary Thai language. Gordon Bakker, Supachai Singyabuth and Buavaroon Srichaikul have begun evaluating the texts in terms of pharmacological usages and artistic

means of preservation. The findings will elucidate existing data and provide further realization of the importance of this topic. The approach is meant to “bridge the gap” so to speak and address the implications of the research. There are two components which are as follows:

1. Thai Traditional Medicine Formulae written in Palm Leaf Scriptures, Mahasarakham.
2. Thai Folk Literatures written in Palm Leaf scriptures, Mahasarakham and the means and methods employed for conservation.

In Thai Traditional Medicine Formulae were written in Palm Leaf scriptures using formulations consisting of many kinds of plants which can contain minerals, vitamins, volatile oils, glycosides, alkaloids, bio flavanoids, and other substances that are important in supporting a particular herb's medicinal properties. Substances derived from the plants remain the basis for a large proportion of the commercial medications used today for the treatment of heart disease, high blood pressure, pain, asthma, and other ailments . They are categorized in Thai traditional medicine. There are over 750,000 plants on earth. Only very few of the healing herbs have been studied scientifically. However, almost all of the current research validating herbal medicine has been done in Germany, Japan, India, China, Taiwan, Thailand and Russia. Thai Folk Literatures written in Palm Leaf scriptures, Mahasarakham, we also have explored many items of Ancient Thai literatures or folklores such as Sutthanuchadok, Tao Hua korlor and Phadaeng Nang aie etc. Thai Traditional Medicine Formula written in Palm Leaf scriptures, Mahasarakham contained various types of therapeutic medicinal formulations such as Flatulence ,Osteoarthritis Osteoarthritis, Jaundice , Kidney stone disease, Urinary obstruction, Medicines for animal bites, Medicine for energizing, Nose bleeding with mucous ,Antitussive, Cough medicine, Insect in ear cavity, Pruritic and Dermatitis, Topical anti mycotic drug, Anti haemorrhoid drug , Toothache medicine, Skin care medicine , Red eyes , Medicine for Abscess , Antipyretic, Energening vitamin,Vitamin and tonic, Antihaemorrhoid drug , Medicine for relieving, Internal abscess , inflammation of male sex organ (Testis) , Kidney stone (Calcalli) , Antiasthmatic drug, Cold remedy, Medicine for abscess or infection, Anticonvulsant drug, Medicine for white skincare , Medicine for fish-bite , Abscess or pus medicine etc.(*B.srichaikul, Advances in Natural Science ,CSCanada, Vol. 5, No. 3, 2012, pp. 11-20* ) Refinement and verification of scientific data correlating ancient palm leaf folk medicinals with present day practices.



**Refinement and verification**

Refinement and verification of scientific data and linguistic correlation of ancient palm leaf folk medicinal formulations and ancient folklore with present day practices.

Historically there has been a close cultural and linguistic relationship between the Tai people in Southeast Asia (Northeastern and Northern Thai/Lanna, Lao, Phu Thai, Phuan, Shan, Tai Khoen and Tai Lue, to mention some of the larger groups). Tai groups that have embraced Buddhism have also adopted the tradition of making [palm leaf manuscripts](#). The reputation of the famous Pali school of Mahasarakham, Kalasin ,Roiet, Khonkaen,Chiang Mai may have contributed significantly to the spread not only of Buddhism in the area, but also of the making of palm leaf manuscripts and the use of the *Tham* script. Palm leaf manuscripts clearly play an important role especially for the preservation of Buddhist texts and commentaries. They were also used to record historical accounts and traditional knowledge relating to social values, customary laws, herbal medicine and traditional healing practices, astrology, divination and horoscopes, non-Buddhist rituals and ceremonies, and literary texts (folklore). The following images are meant to the close tie between craftsmanship and linguistic scientific preservation.



Buddhist manuscript in *Tham* script from Lanna or Laos with black lacquered covers and gilt floral decorations, 19th century. British Library.

Whereas Buddhist texts are often in Pali language and/or in Dhamma (*Tham*) script, other treatises are usually written in Tai languages like Lao, Northeastern and Northern Thai, Tai Khoen, Tai Tham, Khemer, Thai Noi, Tai Lue, or Shan. Local scripts like Lik Tai, Tham Lao, Tham Lanna, and Lao buhan were used.

**Analysis of methodology and investigation**

Analysis of methodology and investigation into the artistry/craftsmanship of vessels to house texts in Thai temples. For the production of a palm leaf manuscript, very large fan-shaped leaves from a *lān* palm (*corypha*) were cut into a long rectangular shape, soaked in a herbal mixture, then dried or baked in a kiln, and finally pressed. These fan palm trees were the preferred type in the Northern Thai/Lanna, Lao and Shan manuscript traditions, and are still commonly planted as ornamental trees in temple grounds. The text was usually inscribed with a sharp wooden or metal stylus, then wiped over with a mixture of resin and/or oil and carbon soot to make the printing more visible. This is an intaglio technique often used in printing however the palm leaves themselves remain as the final image.

Most of the extant palm leaf manuscripts from the Tai traditions were produced during the 18th and 19th centuries, but some date back to the early 16th century. The introduction of modern printing methods in mainland Southeast Asia resulted in a rapid decline of palm leaf manuscript production during the 19th and early 20th centuries. In the Shan tradition, palm leaf manuscripts were largely replaced by bound or folded paper books (Terwiel 2003, p. 26). However, in some places palm leaf manuscripts are still being produced today, or their production has been revived due to the fact that the sponsoring and donation of manuscripts to temples is still regarded as an important meritorious act in the Buddhist context.

Precious manuscripts or palm leaves containing important texts were covered with two wooden or bamboo boards, which were



sometimes left blank, but often they were beautifully carved or decorated. Such covers could be lacquered in red or black, and decorated with gold leaf, mirror glass, mother-of-pearl inlay or even with crystals or precious stones.



Covers from a Shan Buddhist manuscript. The wooden covers are decorated with raised gilt lacquer forming flower ornaments, which were inlaid with mirror glass. 19th century. British Library. Bequest from Doris Duke's Southeast Asian Art Collection.

Black or red lacquer was a popular material to apply on wooden manuscript covers as it provided good protection against damage by water and humidity. At the same time, the shiny black and bright purple of the lacquer were ideal background colours on which gold leaf or gold paint could be applied.



Manuscript in Tham script from Lanna or Laos with red lacquered and gilt bamboo covers, 19th or early 20th century. British Library, Or.16790.

Bamboo strips cut to match the size of the palm leaves were popular covers for manuscripts in Lanna, Laos and among the Shan. The manuscript covers shown above replicate floral decorations made in the stencil technique that can be seen on wooden pillars and beams in many temples in Northern Thailand, Laos and Shan State. This manuscript also has a custom-made wrapper made from cotton with interwoven bamboo strips. Besides gold leaf or gold paint, other materials were applied on the lacquer as well. Mother-of-pearl inlay was very popular in central Thailand, but it was also adopted in Lanna and Laos due to close cultural relationships and exchange or transfer of Buddhist scriptures.



Kammavācā text in Tham script from Chiang Mai with black and red lacquered covers and mother-of-pearl inlay, 19th century. British Library Or.16077. Bequest from Doris Duke's Southeast Asian Art Collection.

Rough shells or their parts were cut into platelets of various shapes before inlaid into the lacquer. The production of items with such intricate decorations required special skills and experienced craftsmanship. Traditionally, mother-of-pearl inlay was used in Thailand exclusively for ecclesiastical objects and was under royal patronage until the end of the 19th century. The manuscript covers shown above are thought to have been produced in central Thailand and may have been given to a royal monastery in Chiang Mai. (Northern).

Another method of decorating wooden manuscript boards was to cover them with black lacquer, then to use a stylus to incise floral ornaments once the lacquer had dried. Afterwards, red lacquer was rubbed on the incisions in order to create a contrasting black and red design. This technique may have been imported into Lanna and Laos from the Burmese and Shan traditions.



Bundles of palm leaves in Tham script with a hand-woven lady's skirt from northern Laos used as a manuscript wrapper, 19th or early 20th century. British Library

Wooden lacquered cover of a *Kammavācā* manuscript dated 1918 in Tham script from Lanna or northwestern Laos. British Library Or.13157. To provide additional protection against dust and mould, palm leaf manuscripts were often wrapped in a piece of cloth, which could either be custom-made or simply an unused lady's skirt, a hand-woven shawl or an imported piece of cloth (for example printed Indian cotton). Custom-made palm leaf wrappers could also be made from local or imported silk. Occasionally such wrappers were interwoven with bamboo strips to provide extra stability for palm leaf manuscripts which had no covers. Another type of manuscript cloth took the form of a long cotton or silk bag that was sewn to match exactly the size of the palm leaves.

**Evaluation of Thai historical preservation of knowledge for collection and dissemination.**

Recently, several binarisation techniques have been proposed to process different kinds of ancient document images. While many well-known binarisation techniques are particularly suitable for certain types of document images, there is no specific guidelines on the determination of the appropriate type of image degradation, or characteristics of the image. A novel method has been proposed to generate the optimal binary image from different binarised outputs from a document image. This approach is based on weight majority vote, and uncertain pixels are then determined based on local areas of the binarised images, by applying iteration of weight majority vote. Experiment over benchmark data set of the Document Image Binarization Contest (DIBCO) 2011 shows that the proposed method provided better performance than most well-known techniques. The proposed method has also been applied to ancient manuscripts on palm leaves from Thailand and this approach provided better results than binarised outputs from original binarisation techniques.

**Thai Traditional Medicine Formula written in Palm Leaf scriptures, Mahasarakham**



**Conclusion and suggestions**  
 The result of this research revealed the uses and the compositions of traditional Thai herbal medicine which were extracted from Mahachai Temple Palm leaf scriptures volume 1 by Mahasarakham University researchers, Thailand. Further study will be the exploration of the area of drug potency, efficacy, safety, adverse

reactions, drug interaction, side effects etc., and also the perspective investigations which may involve the exploration of the benefits of combining Thai historical Palm leaf medicinal manuscripts with the current modern pharmaceutical techniques in order to create an advanced resource for the new formulation of drugs. This study explores the materials and methods (craftsmanship) employed in preservation of knowledge. Additionally, this research directly links traditional and modern medicine and may encourage pharmacists and physicians in producing a new approach to alternative medicine in the future.

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