REVIEWS

Medicinal Plants in Tipitaka

Narumon Laohareungpanya

Central Instrument facility laboratory, Chulabhorn Research Institute

Abstract

Tipitaka is one of the ancient treatises that researchers can take the advantage for drug development from natural resource. Tipitaka is the fundamental scriptural canon of Buddhism. It is a large set of treatises which can be divided into 3 major parts; namely, Vinaya Pitaka, Sutta Pitaka, and Abhidhamma Pitaka. Medicinal plants are mostly presented in the Vinaya Pitaka (volume of Mahavagga). They are named in the Magadhi language and have about 34 specific species. Mode and medicinal use of the plants are cited in the way of Buddhist life. It seems to be very few in comparison with the Ayurvedic Material Medica. However, it is useful for focusing the research on medicinal plants.

Key words : Tipitaka, medicinal plants, drug development, Ayurvedic

พืชสมุนไพรในพระไตรปิฎก

นฤมล เลาหเรืองปัญญา

ห้องปฏิบัติการเครื่องมือรวม, สถาบันวิจัยจุฬาภรณ์ หลักสี่ กรุงเทพฯ 10210

บทคัดย่อ

พระไตรปิฎกเป็นคัมภีร์โบราณที่นักวิจัยอาจใช้ในการสืบค้นหาแนวทางในการศึกษาฤทธิ์และพัฒนายาจากสมุนไพรได้อีกคัมภีร์หนึ่ง พระไตรปิฎกเป็นคัมภีร์หลักสำคัญในพระพุทธศาสนา ประกอบด้วย 3 ส่วนสำคัญ คือ พระวินัยปิฎก พระสุตตันตะปิฎก และพระอภิธรรมปิฎก เรื่องของพืชสมุนไพรต่าง ๆส่วนมากจะปรากฏอยู่ในส่วนของพระวินัยปิฎกเล่มมหาวรรค ซึ่งมีการกล่าวถึงพืชสมุนไพรประมาณ 34 ชนิดในชื่อที่เรียกเป็นภาษามคธ สรรพคุณและวิธีการใช้พืชสมุนไพรต่าง ๆ จะกล่าวถึงเฉพาะที่พระภิกษุในพระพุทธศาสนาจำเป็นต้องใช้เท่านั้น ดังนั้นข้อมูลของพืชสมุนไพรต่าง ๆจึงมีไม่มากเมื่อนำมาเปรียบเทียบกับคัมภีร์อายุรเวชของอินเดียโบราณ แต่ถึงอย่างไรก็ดีข้อมูลของพืชสมุนไพรในพระไตรปิฎกนับว่าเป็นหลักฐานสำคัญในการหาแนวทางวิจัยถึงสรรพคุณที่สำคัญโดยเฉพาะเจาะจงของพืชสมุนไพรนั้น ๆ

คำสำคัญ : พระไตรปิฎก, พืชสมุนไพร , พัฒนายา, คัมภีร์อายุรเวช

Introduction

Researches on medicinal plants have been going on intensively during the past two-decades to determine the effective phytochemical compounds with the least toxicity for production of new drugs. For achieving this objective, the ancient medicinal treatise can be used to explore and determine a medicinal value of the plants. Besides the well-known ancient medicinal treatises in Ayurvedic, Siddha, and Unani systems of medicine, Tipitaka is one of the ancient treatises written on medicinal plants in the Buddhist culture for more than 2500 years.

History of Tipitaka

Tipitaka is a name of the Buddha's teaching used by the Buddhist for conducting their life. It is a large set of treatises that there are 45 treatises in Thai-Tipitaka. All of them can be divided by the subject into 3 major parts; namely, Vinaya Pitaka (volume 1-8), Sutta Pitaka (volume 9-33), and Abhidhamma Pitaka (volume 34-45). The Vinaya Pitaka is the part of treatises established rules and ways that the Buddhist monks should follow, while the Sutta Pitaka contained the Buddha discourses, and the Abhidhamma Pitaka discussed philosophical systematizations of life. At first, the texts in Tipitaka were memorized and learnt as oral traditions by monks for about 433 years after the Buddha's death. Later on, they were rehearsed and inscribed as texts on palmleaves during the reign of King Vaggaminiahpai in Sri Lunka. This revised Tipitaka text has been widely used in most Buddhist countries until the present.

Medicinal plants named in Tipitaka

Medicinal plants in Tipitaka are mostly presented in a chapter of disciplines for monks to use medicine in the volume 5 of Vinaya Pitaka, the Mahavagga Khandhaka.[1] They are named in Pali or the Magadhi language. Medicinal plants in Tipitaka were classified by parts of plants that can be used in medicine. These are: 1) *mula* means roots, rhizomes, or bulb, 2) *panna* means whole leaves, 3) *phala* means seeds and seedless fruits, 4) *jatu* means balsam, latex, gum resins, or resin, and 5) *kasava* means extracted solution from any parts of plants. Methods for administration of these medicinal plants were as oral consumption and percutanous application by rubbing, dropping, inhalation, fumigation, or soaking. Pharmaceutical dosages form of the raw and dried of fruits/ root/ rhizome, decoction, tincture, powder and paste were used in the Buddha's lifetime. Supportive ingredients of the medicine were water, ash water, urine from cows or monks themselves, honey, butter, ghee, oil, and cane juice. There were 34 medicinal plants identified specifically in Tipitaka. It had a few of plants when compared with the Charaka's compendium[2], since the Tipitaka recorded only the medicinal plants that were used frequently for treating pathological symptoms of Buddhist monks and easy acquirement. The illness of monks that usually occurred at that time was malnutrition due to gastro-intestinal disorders, infectious disease that normally occurred in October to November (rainy and cold), and skin diseases. Some of the medicinal plants in Tipitaka are presented in the following table. They are listed in alphabetic order by the Magadhi names[3] in comparison with the botanical names and families of plant species.[2, 4, 5] Mode and medicinal uses of the plants are briefly stated only that were evidenced in Tipitaka[1, 6] including the general uses from literatures of many resources. [2, 5, 7, 8, 9]

Conclusion

There are about 34 medicinal plant species named specifically in Tipitaka. The names of plants and ways for medicinal preparation in Tipitaka are similar to the Ayurveda, an ancient Indian system of traditional medicine. The medicinal uses of these plants were established by the Buddha, therefore, the Tipitaka does not describe the wide application of medicinal plants as many treatises do. It specifies parts of plants for specific symptoms that occurred to the Buddhist monks at that

Lists of medicinal plants in Tipitaka

Magadhi name[1]	Botanical name [2, 5] Family name	Part of plants: Medicinal uses cited in the TIPITAKA[1, 6] (General uses in other ancient treatises)[2,5,7,8,9]
1. Amalaka	*Phyllanthus emblica* EUPHORBIACEAE	Fruit : jaundice, tonic, purgative (antioxidant, antihepatotoxic, antibacterial, antifungal, purgative, diuretic, aphrodisiac)
2. Ativisa	*Aconitum heterophyllum* RANANCULACEAE	Root : malnutrition due to gastrointestinal disorder, fever (antipyretic, antidiarrhoca, leucoderma, dysuria)
3. Bhaddamuttaka	*Cyperus rotundus* CYPERACEAE	Rhizome: eye drug, malnutrition due to gastrointestinal disorder, skin disease. (stomachic, anthelmintic, wound healing, diuretic, antipyretic, stimulant, tonic)
4. Candana	*Santalum album* SANTALACEAE	Wood: eye drug, skin disease (antidiarrhoea, wound healing, antiemitic, antipyretic, astringent)
5. Gothaphala	*Tribulus terrestris* ZYGOPHYLLACEAE	Fruit: jaundice, morbidness (analgesic, diuretic, rejuvenative, tonic)
6. Halidda	*Curcuma longa* ZINGIBERACEAE	Rhizome: gastrointestinal disorder, jaundice (stomachic, carminative, anti-inflammation, antihepatotoxic, peptic ulcer, anticancer)
7. Haritaka	*Terminalia chebula* COMBRETACEAE	Fruit: unhealthy due to long time constipation (purgative, tonic, antibiotic, blood purifier)
8. Hingu	*Ferula asafoetica* UMBELLIFERAE	Gum /resin : indigestion, headache (skin disease, laxative, digestive, dysuria, expectorant)
9. Kalanusariya	*Ichnocarpus frutescens* APOCYNACEAE	No part identification: eye drug, skin disease (antipyretic, dyspepsia, and eyesight promoter are found in leaf and root)
10. Kappasi	*Gossypium herbaceum* MALOACEAE	Leaf : fever, muscular and joint pain, vertigo, dyspepsia, nausea, no appetite (dysuria, scabies)
11. Katukarohini	*Picrorchiza kurrooa* SCROPHULARIACEAE	Rhizome : Gastrointestinal disorder, appetizer (stomachic, carminative, appetizer, antihepatotoxic)
12. Kutaja	*Holarrhena antidysenterica* APOCYNACEAE	Extract plant: ulcer, boils, abscess Leaf: fever, muscular and joint pain, vertigo, dyspepsia, nausea, vomiting, no appetite (astringent, antidysenteric, purgative, stomachic, antipyretic, tonic)
13. Lasuna	*Allium sativum* LILIACEAE	Bulb: have a queasy feeling in the stomach (hypolipidemia, flatulence, rubefacient, vermifuge, aphrodisiac)
14. Marica	*Piper nigrum* PIPERACEAE	Fruit: malnutrition (rhinitis, appetizer, asthma, antibiotic)
15. Mugga	*Phaseolus radiatus* PAPILIONACEAE	Seeds: malnutrition (nourishing food, urinary disease)
16. Mulalikahi	*Nelumbium speciosum* NYMPHAEACEAE	Rhizome: fever (anti-inflamation, antihepatotoxicity, cold, debility)
17. Nattamala	*Jasminum sambac* OLEACEAE	Extracted flower: itch, boils, abscess, deodorant (antipyretic, skin disease, eye lotion)

Magadhi name[1]	**Botanical name** [2, 5] **Family name**	**Part of plants: Medicinal uses cited in the TIPITAKA**[1, 6] **(General uses in other ancient treatises)**[2,5,7,8, 9]
18. Nimba	*Azadirachta indica,* or *Melia azadirachta* MELIACEAE	Extracted plant: itch, boils, abscess, deodorant Leaf: fever, muscular and joint pain, vertigo, dyspepsia, nausea, no appetite (skin disease, antipyretic, tonic, stimulant, gastrointestinal disorder)
19. Paggava	*Tinospora crispa* MENISPERMACEAE	Extracted plant: itch, boils, abscess, sores, deodorant (anti-inflammation, antipyretic, appetizer, jaundice, stomach complaints, antibiotic, tonic, skin disease)
20. Patola	*Trichosanthes dioica* CUCURBITACEAE	Extracted plant: itch, boils, abscess, deodorant Leaf: fever, muscular and joint pain, vertigo, dyspepsia, nausea, no appetite (antipyretic, diuretic, galactagogue, hypoglycemic, skin disease)
21. Phanita	*Sacharum officinarum* GRAMINEAE	Extract plant: vomiting, malnutrition due to fever (antiemetic, morbid thirst, wound healing)
22. Pipphali	*Piper longum* PIPERACEAE	Fruit: malnutrition due to fever, juandice (carminative, appetizer)
23. Sajjulasa	*Styrax benzoin* STRYRACACEAE	Gum /resin: skin disease, headache (antiseptic, antiinflammation, expectorant, carminative, anti-depressant, diuretic)
24. Sulasi	*Ocimum sanctum* LABIATAE	Leaf: fever, muscular and joint pain, vertigo, dyspepsia, nausea, no appetite seed: wound itching (antipyretic, splenic disorder, toxicosis, rheumatism, skin eruption)
25. Singivera	*Zingiber officinale Rase* ZINGIBERACEAE	Rhizome: fever, gastrointestinal disorder (antibiotic, immunostimulant, antiemetic, analgesic, hypolipidemic)
26. Tagara	*Valeriana hardwickii* VALERIANACEAE	Root: eye drug, skin disease (antipyretic, poisoned bites, diuretic)
27. Taka	*Calotropis gigantea* ASCLEPIADACEAE	Latex : purgative, (poisoned bites, nasal ulcer, laxative, rheumatoid arthritis, bronchial asthma, diabetes mellitus, nervous disorders laxative)
28. Talisa	*Abies webbiana* PINACEAE	No part identification: eye drug (cough, colic pain, dyspepsia)
29. Tilaka	*Sesamum indicum* PEDALIACEAE	Seed : wound abscess, acute constipation (wound healing, tonic, nourishing food)
30. Usira	*Andropogon squarrosus* GRAMINEAE	Root: fever, jaundice (antipyretic, toxicosis, skin disease, debility)
31. Vibhitaka	*Terminalia belerica* COMBRETACEAE	Fruit: purgative (haemorrhoid, dropsy, boils)
32. Vaca	*Acorus calamus* ARACEAE	Rhizome: gastrointestinal disorder (carminative, stomachic, expectorant, antispasmodic, vermifuge, antiemetic, sedative)
33. Vacattha	*Kaempferia galanga* ZINGIBERACEAE	Rhizome: gastrointestinal disorder (stimulant, carminative, stomachic, expectorant, anti-inflammation)
34. Vilanga	*Embelia ribes* MYRSINACEAE	Fruit: jaundice, morbidness (anthelmintic, taeniafuge, purgative, astringent, carminative, tonic)

time. The researchers can use these details to focus their research on drug development from these medicinal plants. Up to now, there are many research papers published on some plants in Tipitaka.[9]

Acknowledgements

The author is thankful to Pra Wichai Sa-ngiam, Wat Hongrattanaram for his guidance in this work, and Mr. Akradej Wattanasomboon, Department of Mineral Fuels, Ministry of energy for providing necessary facilities.

References

1. Mahavagga In:*Vinaya Pitaka.* Bangkok: Mahamakut Buddhist University, 1982;5: No. 25-94.
2. Rao AN. Medicinal plants from Charaka's compendium and Burkill's dictionary-a review. *J Trop Med Plants* 2002; 3: 259-302.
3. Budsir/ TT V.2 for Windows (Computer program). Bangkok: The Mahidol University Computering center, 2001.
4. Sa-ngiam W. Herbs analyzed in Vinaya Tripitaka. (M.E. Thesis in education). Thailand: Department of Nonformal Education, Silapakorn University; 2000.
5. Rao AN. Medicinal plants species from Sushruta's compendium -a review. *J Trop Med Plants* 2004; 3: 283-305.
6. Chulavagga (part 2) In: *Vinaya Pitaka.* Bangkok: Mahamakut Buddhist University, 1982; 7: No.33 and 188.
7. de Padua LS, Bunyapraphatsara N, Lemmens RHMJ. *Prosea12 (1): Plant resources of South-East Asia: Medicinal and poisonous plants 1.* Indonesia: Prosea Bogor, 1999.
8. Deewisage K, Ranglek S, Chaiphasitkul K, Wachungngun K. *Manual of Thai-traditional pharmacopeia* (ISBN 974-7758-55-5). Bangkok: The War Veterans Organization of Thailand, 1994.
9. Lambert J, Srivastava J, Vietmeyer N. *Medicinal Plants rescuing a global heritage* (World Bank Technical paper No. 355). Washington DC: The World Bank, 1997.