Ethnobotany and Traditional Knowledge of Bamboos (Poaceae: Bambusoideae) in Asia and Their Applications in the Complementary and Alternative Medicine: A Review

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ABSTRACT
Plants are considered a great source of various herbal medicines in the treatment of certain diseases and ailments. There is a growing interest in the utilization of indigenous medicinal plants as the source for complementary and alternative medicine (CAM) due to the significant contribution of plant-based materials to the pharmaceutical field. Bambusoideae is a large grass family of Poaceae, comprising approximately 119 genera and 1482 described species. About 70% of the bamboo forests are covered throughout Asia. This study aims to provide an informative review of the ethnobotanical significance and traditional knowledge of medicinal plants belonging to the Bambusoideae. This review comprises informative data on medicinal plants, their uses, and parts used by indigenous people and native communities in Asian regions. In line with this review, bamboo has made significant contributions to the ethnobotanical field, specifically as therapeutics for specific diseases. Ethnobotanical data has also made a successful contribution to the CAM. Therefore, the present review on ethnobotany and traditional knowledge of bamboo is expected to have many benefits and could be a good starting point for future work in the pharmaceutical field, both locally and internationally.

Key words: Asia, Bambusoideae, Complementary and alternative medicine, Ethnobotany, Traditional knowledge.

INTRODUCTION
Early plants started colonizing the ground about 450 million years ago and have taken advantage of their versatile metabolism to produce various natural medicinal products.1 One common strategy used to identify new drugs is by exploring folk herbal extracts.2 The earliest scientific documentation of potential medicinal use of bamboo was published in the early 1960s,3 followed by a series of studies conducted by Shibata et al. in the 1970s.4-6 Bamboo, as a biomedical research topic, was relatively silent during the 1980s and 1990s, but research interest has increased worldwide since the beginning of this century.7 Thus, bamboo plants play a significant role in traditional Asian medicine over six decades ago.

The family Poaceae (grasses), known as bamboo (or Bambus, a vernacular word of unknown Oriental origin), includes 12 subfamilies, the largest of which is the Bambusoideae, which includes 119 genera and approximately 1482 species. These species are further divided into three tribes: Bambuseae (tropical woody bamboos with 66 genera and 812 species), Arundinarieae (temperate woody bamboos with 31 genera and approximately 148 species), and Olyreae (herbaceous bamboos with 12 genera and 124 species).10-12 The molecular phylogenetic results support the recognition of three tribes within the Bambusoideae.11,13 These grasses have woody culm with leaves adjusted to support and protect the tender young shoots, an outer ligule (contraligule) on the foliage leaves, gregarious monocarpy (ranging from a few years to 120 years for the flowering cycle), complex vegetative branching, and have bisexual flowers.14-16 Herbaceous bamboos typically lack differentiated outer ligules and culm leaves, unisexual spikelets, and have confined vegetative branching.14-16 Excluding the New Guinea endemic Buergersiocaloa, all Olyreae have crenate (olyroid) silica bodies.17-19

According to the Food and Agriculture Organization (FAO),20 Asia contributes to the world’s largest source of bamboo resources. However, there is no comprehensive and up-to-date checklist of plants, particularly the medicinal plants of Asian regions. Notably, Asia and Pacific regions account for about 80% of bamboo forests and species available worldwide.21 Within its temperate and tropical climates, Asia has many advantages for bamboo cultivation, accounting for more than 900 species in 40-50 genera. Many Asian countries such as China, India, Thailand, Indonesia, Vietnam, and Myanmar are rich in bamboo resources.22 As a result, this review article focuses on the ethnobotanical and traditional knowledge of medicinal plants in the Bambusoideae specifically used by indigenous people and native communities in Asian regions. The medicinal plants, together with their uses, are reviewed accordingly throughout this article. Likewise, the applications of complementary and alternative medicine (CAM) are also addressed.

BACKGROUND OF BAMBOOS IN ASIAN REGIONS
Bamboos are known to be durable and fast-growing with short harvest periods. Furthermore, they are sustainable (in terms of yield), inexpensive, and have
supported livelihoods throughout history. These factors make bamboo a reliable resource for meeting the needs of an increasing population, market, and development.23-26 Thus, it has been so intricately related to the livelihood of Asia people, representing the bamboo civilization on the continent.25 These grasses are found throughout Africa, Latin America, and Asia, but their origins can be traced back to Southeast Asia. Bamboo's geographical distribution is generally determined by climates.28 It is widely distributed in the tropical and subtropical zones approximately between 46° N and 47° S latitude, reaching elevations as high as 4000 m in the Himalayas and parts of China as it adapts easily to a variety of climatic and soil conditions.27-28 Bamboo thrives in temperatures ranging from 8.8 to 36°C,29 but some species can still grow in colder climates with temperatures as low as -20°C.30 Bamboo grows best in areas with high rainfall, ranging from 1270 mm to 6350 mm or more,31-32 thus highlighting the significant impact of rainfall on the distribution and growth of these species.

As shown in Figure 1, the Asian-Pacific Region (I), the American Region (II), and Africa (III) are the main producing areas of bamboo. Around 80% of the world's bamboo forest is located in the Asian-Pacific regions,33 whereas India and China account for approximately 70% of Asia's bamboo forests.33 Along with a recent report, Asia is the world's largest source of bamboo resources.33 China has the most bamboo species (626 species),33 followed by India, which has 115 species.34 Surprisingly, about 25% of all bamboo species were discovered in India, particularly in the biodiversity hotspot regions like northeast India and western Ghats.35-36 Bamboo fossil records in Asia suggest that bamboo was most likely dispersed from India following the collision of the Eurasian Plate with the Indian Plate. Nevertheless, more fossil records from Asia are required to validate this dispersal route because another from Europe cannot be ruled out.37

More than two million tonnes of bamboo shoots are consumed in Asia annually. Since ancient times, bamboo products have been consumed either as fresh, dried, canned, boiled, fermented, or as medicine. These practices are common in many Asian countries, including Bhutan, China, Indonesia, Japan, Korea, Malaysia, Nepal, and northeast India.32,36-40 Both fresh and fermented bamboo shoots are crucial sources of income for rural communities because they are high in fat, carbohydrates, protein, minerals, vitamins, enzymes, coenzymes, reducing and non-reducing sugars, and lactic acid (if fermented).41-49 Thus, they have been widely used as a source of nutraceutical products. For instance, underground shoots of bamboo are cooked as a vegetable soup ingredient called laaw in the Philippines.40 Bamboo salts (jookyeom) are roasted with regular salt, yellow clay, and bamboo culms in Korean traditional medicines to treat chronic diseases.50-52 Tender shoots of a few species are consumed in India as pickles, vegetables, and curries.53,48,54 In most bamboo-growing countries, clean young bamboo leaves are dried, roasted, and consumed as tea. It is considered a tasty and healthy beverage.43

**ETHNOBOTANY AND TRADITIONAL KNOWLEDGE OF BAMBOOS IN ASIA**

In 1896, American botanist John Harshberger coined the term ethnomedicine, which refers to “the study of plants used by humans”.55 Ethnomedicine is a branch of botany that focuses on products derived from natural sources such as food, coloring agents, fiber plants, fertilizers, building materials, dyes, tan, taboos, avoidance, magico-religious beliefs about plants, and other functional and harmful plants.56-58 In other words, ethnomedicine is the study of how people in specific regions and cultures use indigenous plants.30 It is now widely acknowledged that ethnomedicine is closely tied with the natural and traditional relationship between plants and humans in a dynamic ecosystem. Ethnic people have a strong belief in native folklore medicine as part of the system and rely heavily on plants for almost all of their daily needs and requirements. Traditional medicine is a collection of empirical practices that are inextricably associated with the religious practices and beliefs of indigenous cultures. Traditional medicine relies heavily on medicinal plant knowledge. According to the World Health Organization, roughly 80% of the world’s population (six billion people) depends primarily on traditional medicines.60 In addition, anthropological research has been extensively conducted.61-62 However, traditional medicine is widely used in modern society despite the archaeological record's remarkable lack of visibility of such medicine. This review article discusses the ethnomedical parts and traditional knowledge of medicinal plants from the Bambusoideae used by indigenous people and native communities in Asian countries. Based on Table 1, the medicinal properties of bamboo plants and their applications are discussed throughout this article.

**APPLICATION OF BAMBOOS IN THE COMPLEMENTARY AND ALTERNATIVE MEDICINE**

For Millennia, Bamboos have been utilized in traditional Asian medicine, particularly in China and India.115-116 In folk medicine, all parts of this plant are used. Cough, fever, leprosy, hypertension, lung inflammation, cardiovascular diseases, arteriosclerosis, osteoarthritis, and osteoporosis are all treated with the leaves.115,117-118 In addition to being a food source, primarily in Asian countries, bamboo shoots are used to cure and prevent cancer and cardiovascular complications,
### Table 1: Summary of bamboos as medicinal plants according to Asian countries.

| Scientific names | Common names | Parts used | Preparation | Application | Ailments treated | Places | References |
|------------------|--------------|------------|-------------|-------------|-----------------|--------|------------|
| **Bangladesh**   |              |            |             |             |                 |        |            |
| Bambusa multiplex | Thirwa       | Leaves     | Juice       | Oral        | Fevers          | Chittagong Hill Tracts [63] |
| (Lour.) Raeusch. | Roots        | Paste      |             | Topical     | Abscesses, itches |
| ex Schult.f.     |              | Juice      |             | Oral        | Fevers          |
| Bambusa oldhamii  | O-anna       | Leaves     | Paste       | Topical     | Abscesses, itches |
| Munro            | Roots        | Decoction (with Terminalia bellerica sliced fruits, Terminalia chebula fruits, Phyllostachys emblica fruits, Solanum violaceum sliced leaves, and Drynaria quercifolia roots) | Oral | Cardiovascular disorders, weakness of heart | Muktipara, Chuadanga Sadar, Chuandanga District [64] |
| **Bambusa tulda** | Bans         | Soft inner core of stems | Decoction with Terminalia bellerica sliced fruits, Terminalia chebula fruits, Phyllostachys emblica fruits, Solanum violaceum sliced leaves, and Drynaria quercifolia roots | Oral | Cardiovascular disorders, weakness of heart | Muktipara, Chuadanga Sadar, Chuandanga District [64] |
| Roxb.             |              |            |             |             |                 |        |            |
| Bambusa bambos   | Kanta Bans   | Stems, leaves, roots, sprouts, bark | - | - | Laxative, leukoderma, inflammation, stranguity, cough, cold, consumption, asthma, emmenagogue, bleeding disorder | Rangamati Hill District, Chittagong Hill Tracts [65] |
| (L.) Voss        |              |            |             |             |                 |        |            |
| Bambusa tulda    | Mitinga      | Leaves | - | - | Arthritis, rheumatism | Chittagong Hill Tracts [63] |
| Roxb.             |              |            |             |             |                 |        |            |
| Bambusa arundinacea | Bans | Stems | - | - | Leukoderma | Chittagong Hill Tracts [63] |
| (Retz.) Willd.   |              | Leaves | - | - | Cough, cold | Chittagong Hill Tracts [63] |
| **Cambodia**     |              |            |             |             |                 |        |            |
| Bambusa spp.     | Russey Srok, Russey Prey | Woods | Decoction | Oral | Liver disorders | Phnom Penh; Kandal; Takeo; Kampong Speu [67] |
| **China**        |              |            |             |             |                 |        |            |
| Phyllostachys nigra |              | - | - | - | - | - | Chuxiong, Central Yunnan [68] |
| (Lodd. ex Lindl.) Munro |              | - | - | - | - | - | Chuxiong, Central Yunnan [68] |
| Bambusa pervariabilis | Zhu Ru | Shavings | - | - | Clearing heat, stopping bleeding | Chuxiong, Central Yunnan [68] |
| McClure |              |            |             |             |                 |        |            |
| Dendrocalamus hamiltonii | Aqqyul | Water inside the culms | Burnt | Oral | Fever | Chuxiong, Central Yunnan [68] |
| Nees & Arn. ex Munro | Culms | Boiled with ginger and garlic | Taken with sugar and rice | Oral | Food poisoning | Chuxiong, Central Yunnan [68] |
| Bambusa vulgaris | Schrad. ex J.C. Wendl. | - | - | - | - | - | Chuxiong, Central Yunnan [68] |
| Gigantochloa albociliata Munro | Roots, buds | Decoction | Oral | - | Dysmenorrhea, irregular menstruation, postpartum blood clots | Xishuangbanna, Yunnan Province [70] |
| Phyllostachys nigra | (Lodd. ex Lindl.) Munro | - | Leaves | - | - | Malaria | Xishuangbanna, Yunnan Province [70] |
| Schizostachyum fungiorni McClure | Nodes | Decoction with Areca catechu petioles | - | - | Headache, body ache, common cold, increase appetite | Xishuangbanna, Yunnan Province [70] |
| Dendrocalamus spp. | Roots | Decoction with leaves of Areca catechu fruit or Alpinia galanga, Gendarussa vulgaris roots, and Adhatoda vasica roots | Oral | Induce urination | Xishuangbanna, Yunnan Province [70] |
| Species                        | Part Used                      | Uses                                                                 | Location                  |
|-------------------------------|-------------------------------|----------------------------------------------------------------------|---------------------------|
| Fargesia spp.                 | Red bamboo fungus             | Skin inflammation                                                    | Yunnan [71]               |
| Indosasa pingbianensis McClure| Shoots                        | Common cold, headache                                               |                           |
| Phyllostachys glauca McClure  | Leaves                        | Cough, lung inflammation                                             |                           |
| Phyllostachys heterocycla     | Sap of young culms            | Cough, throat inflammation                                           |                           |
|                        | Carrière Matsum.              |                                                                      |                           |
| India                       |                               |                                                                      |                           |
| Bambusa arundinacea (Retz.) Willd. | Young leaves, terminal buds (with turmeric leaves) | Grounded with Aloe vera, paste | Topical Fractured bones | Pudukottai District, Tamil Nadu [72] |
| Bambusa arundinacea (Retz.) Willd. | Seeds, seed oil               | Paste                                                                 | Oral Rheumatism            | Tirunelveli Hills of Western Ghats [73] |
| Bambusa arundinacea (Retz.) Willd. | Roots                        | Decoction                                                            | Oral Kidney stone          | Udhampur District of Jammu and Kashmir [74] |
| Bambusa vulgaris Schrad. ex J.C. Wendl. | -                            |                                                                      | Type 2 diabetes            | Tiruvallur District, Tamil Nadu [75] |
| Dendrocalamus strictus (Roxb.) Nees | Gums                          | Soaked in water                                                      | Topical in ear             | Amravati District, Maharashtra [76] |
| Bambusa sp. Bans              | Leaves, Barkas, Seeds         |                                                                      | Oral with water            |                           |
| Dendrocalamus strictus (Roxb.) Nees | Leaves                      | Decoction                                                            | Oral Cancer               | Chhattisgarh [77]         |
| Bambusa arundinacea (Retz.) Willd. | Leaves                      | Juice (mixed with honey)                                            | Oral Cough in children     |                           |
| Bambusa arundinacea (Retz.) Willd. | Roots                        | Decoction                                                            | Skin diseases              | Kanyakumari District, Tamil Nadu [81] |
| Bambusa balcooa Roxb.         | -                             |                                                                      | Clear uterus               | Chittorgarh District, Rajasthan [78-79] |
| Dendrocalamus giganteus Munro | Fresh culms                  | Scrapped (wool made)                                                | Topical Fresh cuts and wounds | North Cachar Hills of Assam [83] |
| Bambusa arundinacea (Retz.) Willd. | Seeds                        | -                                                                    | Rheumatism                 | Pachamalai Hills of Tamil Nadu [84] |
| Bambusa vulgaris Schrad. ex J.C. Wendl. | Leaves                      | Extracted                                                            | Reduced sperm count        | Kathiyavadi Village, Vellore District, Tamil Nadu [85] |
| Bambusa arundinacea (Retz.) Willd. | Leaves                      | Decoction                                                            | Oral Asthma                | Andhra Pradesh [86]      |
| Bambusa tulda Roxb.           | -                             |                                                                      | Oral Piles, constipation   | Assam [87]                |
| Bambusa tulda Roxb.           | -                             |                                                                      | Tetanus infection          |                           |
| Dendrocalamus giganteus Munro | -                             |                                                                      | Steroid drug               | Arunachal Pradesh [88]    |
| Dendrocalamus strictus (Roxb.) Nees | -                            |                                                                      | Astringent, tonic          |                           |
| Schizostachyum capitatum (Manro) | -                            |                                                                      | Abortifacient              |                           |
| R.B.Majumdar                  | -                             |                                                                      | Stomach pain               |                           |
| Bambusa bambos (L.) Voss      | Moongil                       | Paste                                                                | Topical Rheumatism         | Palamalai Region of Eastern Ghats [89] |
| Species                    | Part Utilized | Preparation | Use                  | Location/Region                                      |
|---------------------------|---------------|-------------|----------------------|-----------------------------------------------------|
| Bambusa vulgaris Schrad. ex J.C. Wendl. | Young shoots | Cooked      | Eaten with rice      | Rheumatism, malaria                                 |
|                           | Barks         | -           | -                    | Astringent, emmenagogue                             |
|                           | Leaves        | Boiled, extracted | -                   | Heart problems, malaria, fevers                     |
|                           |               |             |                      | Clean-out dilation and expulsion after parturition  |
| Dendrocalamus strictus (Roxb.) Nees | Leaves        | Young stem cooked | Eaten with rice | Fever                                               |
|                           |               |             |                      | Nokrek Biosphere Reserve, Meghalaya                 |
| Bambusa tulda Roxb. Waa Sanebi | Tender shoots | Decoction, paste | Topical             | Wounds and injuries                                 |
|                           |               | Decoction   | Topical              | Manipur                                             |
| Bambusa arundinacea (Retz.) Willd. | Young shoots | Pouliticed | Topical              | Dislodgment of worms, ulcers                        |
|                           | Leaf buds     | Decoction   | -                    | Discharge of menses                                 |
|                           | Tender shoots | Cooked (curry) | Oral               | Indigestion                                         |
|                           | Whole plant   | Paste (with turmeric and Arecaceae | -          | Contusion, swellings                                |
|                           | Shoots        | Extracted   | Topical              | Bandage for varmam                                   |
| Cephalostachium capitatum Munro Yabing | Water inside the bamboo | - | - | Dysentery, diarrhea                                |
| Bambusa bambos (L.) Voss Bidiru | Grains (infested stem by Sigare or Dendrophthoe falcata) | Rice prepared | Oral | Various diseases (believed as Sanjeevani) |
| Indonesia                 | Bambusa vulgaris Schrad. ex J.C. Wendl. | Bambu Betung | Stems | Pounded | Muscle soreness                                  |
|                           |               |             | -                    |                                                     |
| Dendrocalamus asper (Schult. & Schult.f.) Baker ex K.Heyne | Awo Ridi | Roots | Oral | Internal infection                                |
|                           |               |             |                      |                                                     |
| Phyllostachys sulphurea (Carrière) Rivière & C.Rivière | Bambu Kuning | Stems | Decoction | Oral | Malaria                                          |
|                           |               |             |                      |                                                     |
| Bambusa vulgaris var. striata (Lodd. ex Lindl.) Haur Koneng Gamble | Cangkoreh | Water inside the cavity bamboo | Juice | Cough | Cough                                             |
|                           |               |             |                      |                                                     |
| Dinchochloa scandens (Blume ex Nees) Kuntze | Gigantochloa atroviozacea Widjaja | Water inside the culm | Tear water (peureuh) | Topical | Treating and healing eyes                       |
|                           | Gigantochloa pseudoarundinacea (Steud.) Widjaja | Awi Gombong | Morsel | Oral | Cough                                             |
|                           | Bambusa vulgaris var. striata (Lodd. ex Lindl.) Haur Koneng Gamble | Cangkoreh | Water inside the culm | Cancer                                              |
|                           |               |             |                      |                                                     |
| Dinchochloa scandens (Blume ex Nees) Kuntze | Gigantochloa apus (Schult.f.) Kurz | Awi Tali | Roots | Oral | Kidney, ulcer, diabetes, spleen, liver, breast cancer, blood cancer, cough, hypertension, induced child birth, skin scars, wounds |
|                           |                | Culms      |                      |                                                     |
|                           | Gigantochloa hasskariana (Kurz) Backer ex K.Heyne | Awi Lengka | - | Eye drops, cough                                 |
|                           |               |            |                      |                                                     |

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| Species | Location | Part Used | Preparation | Application | Notes |
|---------|----------|-----------|-------------|-------------|-------|
| *Gigantochloa apus* (Schult.f.) Kurz | Kimbélé, Tali | - | - | Various diseases | Kedewatan Village, Ubud District, Gianyar Regency, Bali Province [100, 103-104] |
| *Phyllostachys bambusoides* Siebold & Zucc. | Wangdae | Sprouts | Decoction | Pollakiuria | Eastern Mountainous Region of North Jeolla Province [105] |
| *Sasa borealis* (Hack.) Makino | Joritdae | Leaves | Infusion | Oral | Common cold | Common cold | Common cold | Common cold | Common cold | Gayasan National Park [106] |
| *Phyllostachys bambusoides* Siebold & Zucc. | Wangdae | Roots | A sweet drink with fermented rice | Oral | Lumbago |
| *Sasa coreana* Nakai | Sinidae | Leaves | Decoction, infusion | Oral | Common cold |
| *Gigantochloa parvifolia* (Brandis ex Gamble) T.Q. Nguyen | Mai Sod | Leaves | Steam sauna, bath | Topical | Postpartum recovery, anemia (dizziness, headache), puerperal fever, lactagogue, postpartum mother recovery, postpartum secondary hemorrhage, perineal healing, retraction of the uterus | Nakai District, Khammouane Province [107] |
| *Bambusa vulgaris* Schrad. ex J.C. Wendl. | Mai Sang Kham | Roots | Boiled (with the root of Mak Feuang Phu) | Oral | Kidney stones | Pakse District, Bolikhamsai Province [108] |
| *Bambusa vulgaris* Schrad. ex J.C. Wendl. | Kawayan | Stems | Decoction, Burnt with coconut oils | Oral | Postpartum wash | Central Philippines (including Guimaras Island) [111] |
| *Schizostachyum lumampao* (Blanco) Merr. | Bagakay | Stems | Burnt | Topical (ash) | Infant's freshly-cut navel |
| *Bambusa bambos* (L.) Voss | - | Leaves | Powdered | Constipation | Chaweng District, Nakhon Si Thammarat Province [112] |
| *Dendrocalamus hamiltonii* Nees & Arn. ex Munro | - | - | - | Fungal infection | 25 Karen Villages (Northern and Western Thailand) [113] |
| *Bambusa bambos* (L.) Voss | Phai Pa | Young stems | Decoction, Potion, oral | Leprosy, lipoma | Khao Luang Region, Nakhon Si Thammarat [114] |
improve digestion, and treat jaundice.\textsuperscript{119,120} They are also used to treat epilepsy, dysentery, diabetes, respiratory problems, bacterial infections, nervous system disorders, skin ulcers, and as a diuretic.\textsuperscript{24,117}

Complementary and alternative medicine (CAM) is described as “healthcare and medical practices that are not currently an integral part of conventional medicine.”\textsuperscript{121} Herbal drugs, traditional medicines, meditation, and religious ceremonies are cases of such practices. More than 40% of western populations practice CAM for a variety of health conditions.\textsuperscript{122} Interestingly, \textit{Bambusa} sp. stem was discovered to be used as a CAM by diabetes mellitus patients.\textsuperscript{123} Due to its connection with Traditional Chinese Medicine (TCM), the findings of moso bamboo (\textit{Phyllostachys edulis}) in treating diabetes mellitus are also being further investigated.\textsuperscript{124} As a result, Asian bamboo species are widely used for medicinal purposes, implying that they could be a CAM in the future due to the uniqueness of their ethnobotany connections. Some lists of bamboo products or parts that were used as CAM are presented in Table 2.

**CONCLUSION**

In conclusion, plants belonging to the Bambusoideae have contributed massively to ethnobotanical and pharmacological fields. This review article summarized bamboo plants that have been used by indigenous people and native communities in Asian countries, specifically to treat certain diseases and ailments. Interestingly, these documented plant species, together with their medicinal values, could be a good starting point for future work in the CAM. In order to prevent the destruction of plant resources and materials, it is vital to correctly identify them for proper harvesting, as well as the chemicals extracted. Specifically, it is crucial to ensure the correct raw materials are being harvested and supplied for pharmaceutical use, thereby facilitating the conservation and utilization of indigenous medicinal plants in the future. In other words, people are aware of and value indigenous knowledge and heritage. Hence, it is proven that ethnobotanical study could be one of the useful tools to document and record potential medicinal plants, including Bambusoideae, especially in the Asian regions.

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**GRAPHICAL ABSTRACT**

ETHNobotany and traditional knowledge of bamboos (poaceae: bambusoideae) in Asia and their applications in the complementary and alternative medicine: a review

**POACEAE**

119 genera & 1482 described species in the world

70% of the bamboo forests are covered throughout Asia

**REVIEW COVERS ON**

- Part of the plant used
- Application of treatment
- Ailment treated
- Complementary and alternative medicine (CAM)
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