

THE BAMBOO SPECIES USED IN THE PRODUCTION OF MUSICAL INSTRUMENTS BY FOUR FILIPINO TRIBES (KALINGA (LUBUAGAN SUBTRIBE), MAJUKAYONG, BAGOBO-TAGABAWA AND T'BOLI)

Pitargue Jr. FC*, Conda JM, Cortez Jr. RE, Balmedina SL & Barile ER

Department of Science and Technology (DOST)–Forest Products Research and Development Institute (FPRDI), College, Laguna, 4031 Philippines

*fernando.pitargue@fprdi.dost.gov.ph

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Bamboo Musical Instruments have been part of Filipino culture for centuries. While there are literature reports on the history and production of Philippine BMIs, only few recognised the bamboo species used in making them. Knowledge about these species will contribute to their conservation as well as in the proper care and protection of bamboo musical instruments in the market and those that are kept on display in museums such as the UP Center for Ethnomusicology. In this study, 31 instruments produced by four indigenous communities: Kalinga (Lubuagan subtribe), Majukayong, Bagobo-Tagabawa, and T'boli are documented and the bamboo species used in making them were identified. The instruments were classified into idiophones (21), aerophones (8), membranophones (1) and chordophones (1). They were made from nine bamboo species, namely: kauayan-tinik (*Bambusa spinosa* Roxb.), kauayan-kiling (*B. vulgaris* Schrad. ex Wendl.), giant bamboo (*Dendrocalamus asper* (Schultes f.) Backer ex Heyne), bayog (*D. merillianus* (Elmer) Elmer), kayali (*Gigantochloa atter* (Hassk.) Kurz), botong (*G. levis* (Blanco) Merr.), bentung (*Schizotachyum brachycladum* (Kurz) Kurz), anos (*S. lima* (Blanco) Merr.), and buho (*S. lumampao* (Blanco) Merr.). Commonly practiced among the tribes in the selection of the bamboo species to use is to consider the length of the bamboo internode, thickness of the culm, diameter of the pole, and availability of the species. The bamboo species that were found in the tribal areas include introduced species that have naturalised in the country.

Keywords: Bamboo species, bamboo musical instruments, indigenous communities, native, naturalised

INTRODUCTION

Wood is the basic structural component in the production of musical instruments (Gejdos et al. 2014). Some of the identified species include ebony (*Diospyros* sp.), black elder (*Sambucus nigra* L.), norway spruce (*Picea abies* L.), sycamore maple (*Acer pseudoplatanus* L.), hard maple (*Acer sacharrum*), european beech (*Fagus sylvatica* L.), japanese cedar wood (*Cryptomeria japonica* D. Don), brasilian rosewood (*Dalbergia nigra* (Vell.) Allemao ex Benth), and pau brazil (*Paubrasilia echinata* (Lam.) Gagnon, H.C.Lima & G.P.Lewis) (Hidayatullah et al. 2023, Culitan et al. 2016, Pfriem 2015). Because many of the above-listed species are now included in the CITES list of endangered species, bamboo was chosen to be used in the production of make musical instruments.

Bamboo is renewable, fast growing, can be cultivated in different localities, and relatively cheaper. It does not require much alteration to its morphological characters and acoustic properties as they are relatively low density, elastic modulus, a significant difference between the elastic moduli parallel to and perpendicular to the bamboo fibres, special fibre cell arrangement, porous structure, and chemical composition distribution (Cottingham 2011, Deng et al. 2022).

Bamboo musical instruments are a collective cultural heritage of ASEAN countries. The angklung used widely in China has its origins in Indonesia, according to a study (Bakri et al. 2021). The bamboo flute, another traditional Chinese instrument, has traditionally been used

to express and transmit emotions, enriching the spiritual world of Chinese people (Xia 2023). The gendang kecapi where it is made of bamboo and has the function of a harp and drum combined in Malaysia is gradually becoming extinct and no longer recognised by the new generation (Isa et al. 2021).

In the Philippines, there are 62 bamboo species, of which, 21 are endemic or native to the country (Roxas 2012, Rojo et al. 2000). Maceda (1998) in his book “Gongs and Bamboo: A Panorama of Philippine Music Instruments” studied indigenous bamboo musical instruments made from these native species. Dioquino (2008), Muyco (2008) and Aurelio (1996) have also described different musical instruments made from bamboo that are used by various indigenous communities. However, though these groups share similar musical instruments, their names differ across the ethnic communities.

Aurelio (1996) identified bolo (*Gigantochloa levis* (Blanco) Merr.) as raw material for Ilocanos’ tongatong, bunkaka or bilbil, and bamboo flute. Batbat, bamboo castanets and tubong are made from bayog (*Dendrocalamus merrillianus* (Elmer) Elmer) and kauayan-tinik (*Bambusa spinosa* Roxb.), respectively. The Aeta communities in Northern Luzon use anos (*Schizostachyum lima* (Blanco) Merr.) in making bamboo flute (Ramirez 1999). In Cordillera, buho (*S. lumampao* (Blanco) Merr.) is used in making percussion instruments while bayog (*D. asper* (Schultes f.) Backer ex Heyne) is used to make stringed BMI. Bayog is commonly referred to as *D. merrillianus* (Elmer) Elmer but it may

also be referred to as *D. asper* (Schultes f.) backer ex Heyne in some parts of the Cordilleras.

Given the paucity of data and findings, it is therefore, necessary to study bamboo species used for bamboo musical instruments for future references. This study documents the bamboo species used for bamboo musical instruments by four indigenous communities in The Philippines.

MATERIALS AND METHODS

Selection of project sites

The researchers conducted a review of the literature prior to selecting the project sites. The sites were chosen based on: availability of the indigenous bamboo musical instruments, accessibility, peace and order, and inclusion of the bamboo musical instruments in the Maceda’s book of traditional music. The indigenous communities identified were Majukayong Tribe in Natonin, Mt. Province; Kalinga Tribe (Lubuagan sub-tribe) in Lubuagan, Kalinga; T’boli Tribe in South Cotabato and Bagobo-Tagabawa Tribe in Toril, Davao. The locations are shown in Figure 1.

Permit application

In compliance with the NCIP Administrative Order No. 1 Series of 2012 known as “The Indigenous Knowledge Systems and Practices and Customary Laws Research and Documentation Guidelines of 2012”, a Free Prior Informed Consent permit and Certificate

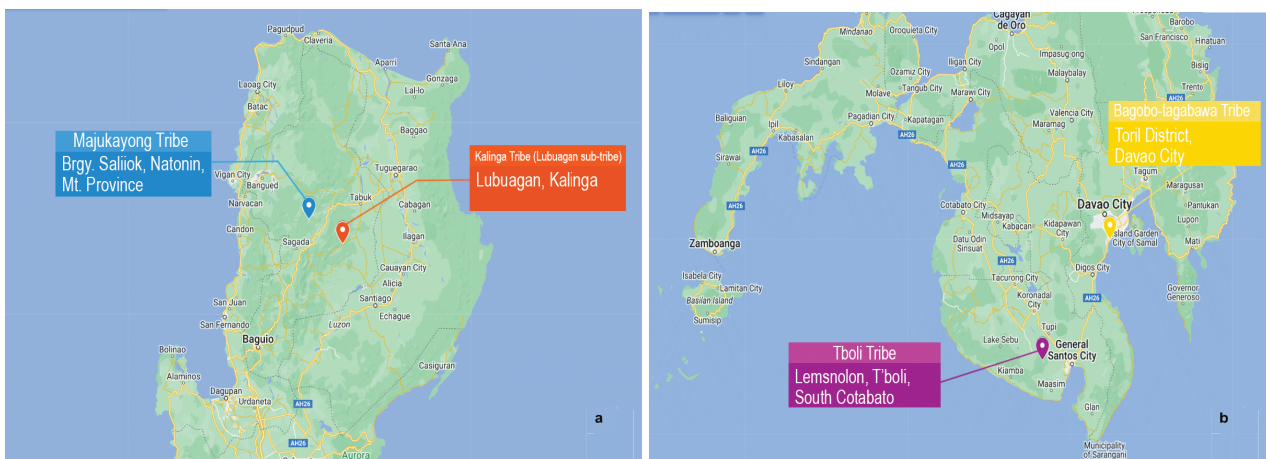


Figure 1 Location of the different tribes in Luzon (a) and Mindanao (b)

of Validation were secured from different NCIP offices and Indigenous Cultural Communities. The FPIC permit number and date of Certificate of Validation are listed in Table 1.

Interviews of interlocutors

Macro identification of bamboo species used for bamboo musical instruments was not possible because the bamboo stem cross sections are almost indistinct. Thus, short interviews were conducted with selected interlocutors based on their cultural and historical involvement in crafting and playing bamboo musical instruments. It also involved consultation with the tribe masters and bamboo musical instruments makers. At least 3 bamboo musical instruments players and 2 makers were interviewed for each project site. The interview questionnaires focused on names of the bamboo musical instruments, their description, the raw materials used in making the bamboo musical instruments, and the reason for the specific use of only species for a specific instrument.

Collection and identification of bamboo specimen

Bamboos have similar macro anatomical characteristics with other types of wood and that makes identification difficult when they were processed into musical instruments. Major bamboo musical instruments players and makers were interviewed on the sources of raw materials. The locations of the bamboo species were identified using Global Positioning System. Photographs were taken while herbarium specimens, such as poles/culms, culm sheaths, branch complements among others, were collected. These were used for the accurate identification of bamboo up to species level since some characteristics such as branch complements are unique for a genera or species:

for *Schizotachyum*, the branches are usually well-developed from the middle of the culm upward while branches of *Bambusa* develop even at the base of the culm, forming a dense ticket that is difficult to penetrate because of their spines. *Phyllostachys* has one primary branch bud at its node and it produces a single secondary bud at its base, with two seemingly unequal size. Other characteristics for selection were culm sheath shape, outline, and appendages.

Leaves and other parts which were kept for a longer period in the collection/documentation area were immediately pressed following the standard herbarium voucher preparation and placed in a polyethylene bag with alcohol to preserve their freshness and avoid wilting. They were later deposited in the FPRDI herbarium facility as reference materials.

Publication titles such as *The Guide to Collecting Bamboos* (Soderstrom & Young 1983), *Philippine Erect Bamboo: A Field Identification Guide* (Rojo et al. 2000), *Anatomical Structure and Properties of Bamboo* (Maruzzo et al. 2005), *Non-Wood Forest Products of the Philippines* (Razal & Palijon 2009), and *Handbook on Erect Bamboo Species Found in the Philippines* (Roxas 2012), were used as references in the collection and identification of the bamboo specimens.

RESULTS AND DISCUSSION

Bamboo musical instruments

Musical instruments can be classified into four types: idiophones, aerophones, membranophones, and chordophones. Idiophones produce sound based only the vibration of the entire instrument or a resonant solid material, such as wood, metal, or stone. Instruments that produce sound primarily by causing a body of air to vibrate, without the use of strings are aerophones. While chordophones

Table 1 FPIC permit number and certificate of validation

Project Sites	FPIC Number	Certificate of Validation
1. Majukayong Tribe	CP-İKSP-CAR-2021-010	21 April 2022
2. Kalinga Tribe	CP-İKSP-CAR-2021-009	31 May 2022
3. T'boli Tribe	RXII-CC-21-08-0050	26 April 2022
4. Bagobo-Tagabawa Tribe	RXI-CP-2021-03-23	22 October 2021

and membranophones use vibrating strings and stretch membrane, respectively, to create sound (Maceda 1998).

A total of 31 bamboo musical instruments were documented from the four tribes. Of these, 21 were idiophones, 8 aerophones, 1 chordophone, and 1 membranophone. The instruments were bamboo clapper, jaw harp, zither, rhythm sticks, nose and mouth flute, side and water flute, quill shape tube, fiddle one string, shaker, xylophone, tubes, and tube drum.

The Kalinga and Majukayong tribes, have almost the same kind and types of bamboo musical instruments but with different local names. The 11 bamboo musical instruments documented from the Kalinga tribe include byellingbing, kullibit, kulilit, patangguk, patang-ug, patiteg, saggaypu, sulimong, tungali (nose & mouth flute), tungatong, and ullibiyew (Figure 2). Ayég udén, béllingving, bérédong, jungajung, kullitong, patangguk, tabatab, tabéllungan, tungali, and unnat were the 10 bamboo musical instruments of Majukayong tribe (Figure 3). The difference in musical instruments between the tribes was recorded where Kalinga has kulilit while Majukayong has ayég udén.

The southern tribes have relatively more bamboo musical instruments compared with northern tribes: Bagobo-Tagabawa and T'boli. Figure 4 describes the BMIs of Bagobo-Tagabawa tribe bamboo musical instruments, such as assa-assa kagik manok, palakpak ka odok, lantoy, and togo while Figure 5 lists the 6 bamboo musical instruments of T'boli tribe: dwegey, kumbing, ksal, sloli, sludoy, and t'nonggong. The dwegey (fiddle one-string) and t'nonggong (drum) were the only chordophone and membranophone documented among the 4 indigenous communities. Palakpak ka odok and ksal were the clapper and rhythm stick, respectively. Table 2 provides the bamboo musical instruments, their classification, makers, and bamboo species used.

Bamboo species used in bamboo musical instruments

The study identified nine bamboo species as raw materials to make indigenous bamboo musical instruments: kauayan-tinik (*Bambusa spinosa*

Roxb.), kauayan-kiling (*B. vulgaris* Schrad. ex. Wendl.), giant bamboo (*Dendrocalamus asper* (Schultes f.) Backer ex Heyne), bayog (*D. merrillianus* (Elmer) Elmer), kayali (*Gigantochloa atter* (Hassk.) Kurz), botong (*G. levis* (Blanco) Merr.), bentung (*S. brachycladum* (Kurz.) Kurz), anos (*S. lima* (Blanco) Merr.) and buho (*Schizostachyum lumampao* (Blanco) Merr.).

Dendrocalamus asper has thick wall and wide diameter culm suitable for making stringed bamboo musical instruments, such as zithers and slit drums. The T'boli tribe used *D. asper* in their dwegey, ksal, and t'nonggong instruments. This species also known as “petung or patting bamboo”, has been used in the bamboo violin innovation by Japan Village Kudus Regency as an alternative raw material to wood (Widyaswara & Haryono 2023) and in the Ma'barutung of the Parombean Village, Curio District, Enrekang Regency (Warsono et al. 2023). They also used *G. atter* and *B. spinosa* in making ksal and sludoy, respectively.

The thin wall and long internode of *S. lumampao* which creates a natural sound resonating through its cavity, makes it ideal for the making of the following instruments: pipes, tubes, xylophones, shakers, flute, zithers, scrapers, and buzzers. The Kalinga tribe made byellingbing, kulilit, patang-ug, patiteg, tungali, tungatong, saggaypu, and sulimong while the Majukayong tribe made ayég udén, béllingving, bérédong, jungajung, tabéllungan, and tungali.

The T'boli and Kalinga tribes made their, jaw harps from *B. spinosa* and *B. vulgaris*, respectively. The Bagobo-Tagabawa tribe used the former to make palakpak ka odok (bamboo clapper). In India, *B. vulgaris* is used to make flute and kendar (Panda et al. 2022).

Gigantochloa levis and *Schizostachyum brachycladum* were used only in making patangguk (tube drum) and assa-assa kagik manok (water flute) belonging to Kalinga and Bagobo-Tagabawa tribes, respectively.

Most of the bamboos used in making bamboo musical instruments were introduced species that have been cultivated and naturalised in the country. The native species used by the indigenous communities were *D. merrillianus*, *S. lima*, and *S. lumampao*. The Majukayong and Bagobo-Tagabawa tribes made unnat and lantoy using *D. merrillianus* and *S. lima*, respectively. Most of the instruments used by Mt. Province



Figure 2 Bamboo musical instruments of the Kalinga Tribe (Lubuagan subtribe)



Figure 3 Bamboo musical instruments of Majukayong Tribe in Saliok, Natonin, Mt. Province



Figure 4 Bamboo musical instruments of Bagobo-Tagabawa Tribe in Toril, Davao



Figure 5 Bamboo musical instruments of T'boli Tribe in Lemsnolon, South Cotobato

and Kalinga tribes were made from *S. lumampao* because it grows abundantly in the area.

CONCLUSION

Indigenous bamboo musical instruments were made from different bamboo species, either native, naturalised or cultivated. The suitability of bamboo species for bamboo musical instruments are based on their characteristics and intended uses as well as their availability and abundance. The buho *Schizostachyum lumampao* (Blanco) Merr.) has been used by most of the Cordillera bamboo musical instruments because of its native and abundance.

The thin-walled, medium diameter and long internode poles were ideal in the making of byellingbing, kulilit, patang-ug, patiteg, tungali, tungatong, ayég-udén, béllingving, jungajung, tabéllungan, assa-assa kagik-manok and palapak ka odok. Kullibit, patangguk, kulitong, tabatab, togo, dwegey, ksal, sludoy, and t'nonggong were made from thick walled, wide diameter and long internode poles. Flutes, such as saggaypu, sulimong, bérédong, unnat, tungali, lantoy, kumbing, and sloli, usually thin walled, has a small diameter and long internode.

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