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Ethnobiological Study of *Wiwitan* in the Somongari Javanese Community as Biodiversity Learning through Educational Video

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Abstract: The lack in knowledge of biodiversity's value at a young age accompanies the loss of biodiversity can be overcome with indigenous knowledge. *Wiwitan* is a form of indigenous knowledge that takes the form of a Thanksgiving prayer held prior to the commencement of the harvest season. This tradition serves to demonstrate the value placed on biodiversity, with the spiritual value of *ubarampe*, or offerings. *Ubarampe* is a traditional ritual apparatus that employs biodiversity, including plants and animals. Nevertheless, the knowledge associated with *ubarampe* remains predominantly oral and demonstrative, with no documented research or written records. The study aimed to investigate the ritual of *Wiwitan*, its *ubarampe*, the spiritual value, and utilization of organisms. Additionally, the purpose of this study is to depict educational videos that enhance comprehension and appreciation of the biodiversity value of the *ubarampe* in the *Wiwitan* ritual. The research technique employed ethnobiological principles during field exploration. The findings revealed that eleven types of *ubarampe* were utilized with eighteen plant species. The informative videos are available on the following YouTube link: <https://youtu.be/Ld7LgJMNH8Y>. Creating educational video and uploaded it on YouTube presents an alternative means of promoting the biodiversity value of the *Wiwitan* ritual.

Keywords: Biodiversity value; Educational video; Somongari; *Ubarampe*; *Wiwitan*

Introduction

The loss of biodiversity is also accompanied by a decline in knowledge about the value of biodiversity, especially among young people and students. Facts show that students have decreased knowledge and awareness related to biodiversity. Students experience disparities in plant awareness (Barrutia et al., 2022) and plant blindness (Pedrera et al., 2021). Young people have also been found to lack general knowledge of native animal species (Hooykaas et al., 2019) and lack the ability to identify species compared to adults (Oliveira et al., 2019). Knowledge and awareness of the value of

biodiversity should be possessed by students, especially those living in Indonesia as a mega-biodiversity country.

Promoting the value of biodiversity to students should be a first step in addressing biodiversity loss. Biodiversity value is the benefit that a diversity of organisms, such as plants, animals, fungi, and other organisms, provides to humans and to nature itself. Biodiversity value is everything that is inherent in biodiversity and provides important services to human life (Alho, 2028; Gowdy, 1997; Kettunen & Brink, 2006). The value of biodiversity can be seen in Indigenous knowledge.

Biodiversity and Indigenous knowledge cannot be separated, as they are closely related. Indigenous

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knowledge is the principles, skills, practices, rituals, and customs developed by a particular people and passed down from generation to generation (Adam et al., 2019; Ksenofontov et al., 2019). Indigenous knowledge is often found in areas with rich biodiversity and is usually occupied by specific ethnic or tribal groups (Das & Shukla, 2007), such as the Somongari Javanese Community.

Somongari Village is located in Kaligesing Subdistrict, Purworejo Regency, Central Java Province, Indonesia. Somongari Village is located on the western side of Menoreh Mountain. This condition makes Somongari Village still rich in biodiversity, in addition to its people, who still keep Indigenous knowledge. Most of the villagers are Javanese. Some Javanese people have customs or tradition related to agroecosystems. Somongari villagers mostly have *wana* (fields and forests) of durian, mangosteen, coconut, and other crops. When the harvest season is about to begin, some Somongari villagers still have the ritual of praying in the *wana* (fields and forests) called *Wiwitan*.

Wiwitan is a ritual of thanksgiving to God for the good fortune of a bountiful harvest, such as durian and mangosteen. *Wiwitan* rituals in Javanese society have been studied by several researchers. Research by Nisa et al. (2022) conducted a literature review on the rationality of farmers in the *Wiwitan* tradition. Research by Maimun et al. (2020) examined the Islamic values of the *Wiwitan* tradition in East Java. Salsabila's research (2022) examines the transformation of the *Wiwitan* tradition in Turipinggir village. Kornadi & Purwanto's research (2019) examines the character values of the *Wiwitan* tradition. None of these studies have examined the *Wiwitan* tradition from an ethnobiological perspective on the use of biodiversity for *ubarampe* in Somongari Village.

Wiwitan is an example of Indigenous knowledge still practiced by some villagers in Somongari village. *Wiwitan* is a prayer ritual performed in the fields or forests before the harvest with *ubarampe*. *Ubarampe*, or offerings, are objects used to supplement prayers by using organisms such as plants and animals, as well as other materials and tools, with the purpose of being offered to God and the ancestors. The use of organisms in *ubarampe* is one of the values of biodiversity, namely spiritual value. Unfortunately, the study of the *ubarampe* of *Wiwitan* ritual in Somongari village has not been researched to be used as biology learning content. In fact, students can learn about biodiversity and Indigenous knowledge at the same time by studying the *ubarampe* of *Wiwitan*.

Previous research has not discussed *wiwitan* from an ethnobiological perspective and packaged it into educational videos. Therefore, the purpose of this

research is to investigate the *Wiwitan* ritual and its *ubarampe*, including the spiritual value and use of the organisms. In addition, this research is also to describe educational videos of *Wiwitan*. Knowledge and understanding of biodiversity values can be used as a first step to prevent biodiversity loss. In addition, learning the *Wiwitan* will also make students love the culture and rituals of their ancestors so that Indigenous knowledge does not become extinct.

The importance of conducting research related to *ubarampe* of *Wiwitan* ritual and create an educational video to promote biodiversity from an Indigenous knowledge perspective. Educational videos are created to support learning and academic processes (Ali & Baig, 2019; Buchner, 2018). In addition, this educational video was uploaded to YouTube so that the promotion of the biodiversity value of *ubarampe* can be known by many people. The urgency of this research is to support students' knowledge of biodiversity, so that students have knowledge of biodiversity through the study of the *Wiwitan* tradition.

Method

Procedure

The method used was field exploration with ethnobiological principles. Field exploration is making observations at the research site. The field exploration was conducted in Somongari Village in September to December 2022. Somongari Village is located in Kaligesing Subdistrict, Purworejo Regency, Central Java Province, Indonesia. The procedure of data collection technique used was an article on the principles of ethnobiology and ethnoecology by Albuquerque et al. (2014), namely interview technique, guided tour, documentation, and literature review. The procedure is presented in Figure 1.

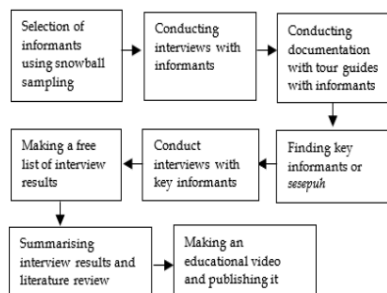


Figure 1. Research procedure

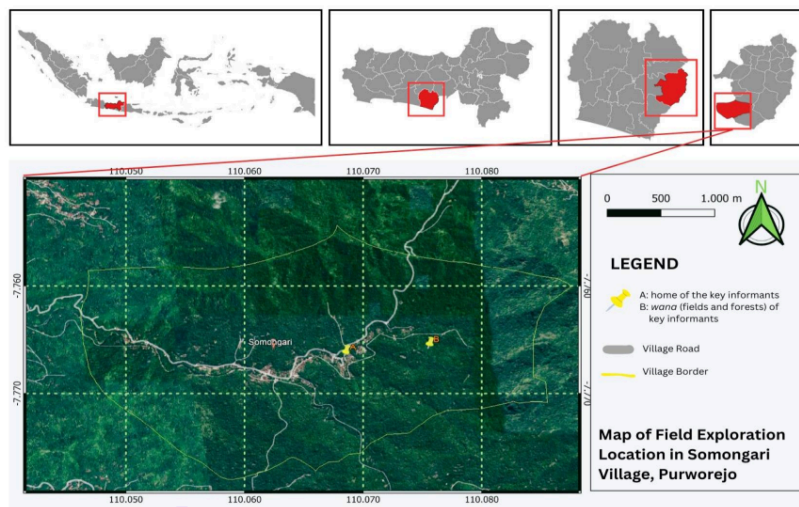


Figure 2. Research location. Somongari Village, Kaligesing Sub-district, Purworejo Regency, Central Java Province, Indonesia.

Data collection and Analyze

The data collected included *ubarampe*, or offerings of *Wiwitan*, spiritual values of *Wiwitan* ritual, and educational videos about *Wiwitan*. The interview technique was conducted with two key informants. The key informants in this study are villagers who are always carrying out the *Wiwitan* ritual and are old. Guided tours were conducted by the following key informants to carry out the *Wiwitan* ritual in the *wana* (fields and forests). The research site is shown in Figure 2.

Audio and video documentation were used to support the data. In addition, this documentation was used as content in the production of the educational video. A literature review was used to analyze the spiritual values of the *ubarampe*, using documentation related to spiritual values. The spiritual value in this article was analyzed by Nazam & Husain (2016); Nazam & Husain (2020). For data analysis, the descriptive-qualitative method was used by describing the research findings.

Result and Discussion

The *Wiwitan* ritual in Somongari village

Wiwitan is a ritual still practiced by some villagers of Somongari village. The purpose of *Wiwitan* is to thank God for the coming harvest. *Wiwitan* is usually done in

the *wana*. *Wana* is the Javanese word for forest. It can also mean field, as Indigenous people usually have fruit plants that grow in the forest, such as durian and mangosteen. Durian and mangosteen are the main agricultural products in Somongari village. In this study, the researchers followed informants who practiced the *Wiwitan* ritual.

Informants have prepared *ubarampe*, or offerings, from home to bring to the *wana*. *Wiwitan* required *ubarampe*, which is usually a supplement to prayers. *Ubarampe*, or offerings, are usually presented to God, and prayers are mediated through ancestors (Ndemanu, 2018; Sulistyorini et al., 2022). Offerings are also used as a means of communication and as gifts to Gods in certain faiths (Zhang et al., 2021). Offerings are also intended to honor ancestors, including in the form of food, drink, and other items (Koranteng-Green, 2018). Article of Devi (2019) also states that offerings are intended for a good harvest and health for the people who tend and harvest.

The walked from the house to the *wana* takes about 30 minutes. The informant carried the prepared *ubarampe* using a *tenggok*. A *tenggok* is a woven bamboo container used to hold objects and is usually carried on a *jarik*. In addition to the *ubarampe*, informants also carried an *arit*. An *arit* is a tool used in agriculture to clean grass that is shaped like a sickle. After arrived at the small *gubuk*, or shelter, where the informant usually rests, we began cleaned the *gubuk*, or shelter, and

arranged the *ubarampe* that has been prepared. We placed the *ubarampe* on a *buki*, or, a small tray. The prepared *ubarampe* was then taken to the informant's oldest durian tree. The *ubarampe* in the small tray was then placed on a pedestal right under the durian tree. After placed the *ubarampe*, we prayed to God. The essence of the prayer is to be grateful for the good fortune and harvest that will be received. After prayed, we took a walk to look around while clearing some grass.

After it was enough for about 15 to 30 minutes, we went to the durian tree, where we prayed with the *ubarampe*. Afterwards, we consumed the edible part of the *ubarampe*. This is called *nggaoki*. *Nggaoki* refers to the act of eating *ubarampe*, or offerings, once the prayer ritual has concluded. However, not all of the food is consumed in the *Wiwitan* ritual. The remaining food was dispersed around the tree. Spreading food and drinks around a tree does not constitute waste. Insects or other animals passing by can consume the leftovers, which can also serve as natural fertilizer once decomposed by decomposers. After completing rituals, we returned to the *gubuk*, or shelter, where we rested and ate the foods consisting of rice and side dishes that were brought along. These foods were prepared by informants as an

addition to the *ubarampe*, which was intended for prayer. Figure 3 showcases the *Wiwitan* ritual activities.

Utilization of organisms in *ubarampe* of *Wiwitan* ritual

The inclusion of organisms, such as animals and plants, is essential to the prayer aspect of *ubarampe*. *Ubarampe*, which are derived from plants or their derivatives, are utilized as a complement to the *Wiwitan* ritual. A total of eleven *ubarampe* types have been identified, including *Bonang-baning*, *Sekar Setaman*, *Kinang*, *Rokok*, *Wedang kopi*, *Wedang teh*, *Wedang gebyur*, *Sega tumpeng*, *Lawuh*, *Jangan*, and *Jajan rakan*. A total of 18 plant species were identified, including 11 eudicots, 6 monocots, and 1 magnoliid. Eudicot merupakan kelompok terbesar dari tanaman Angiosperms consist of a basal grade and a large (core eudicot) clade (Forest & Chase, 2023; Ronse De Craene, 2012). One of the main differences between monocots and other angiosperms is the possession of a single cotyledon (compared to two cotyledons in other angiosperms) (Chase, 2004). The magnoliid clade is characterised by paracytic stomata with a pair of distinct lateral auxiliary cells enclosing a guard cell (Rudall, 2023). Please refer to Table 1 for the full list of *ubarampe* used during the *Wiwitan* ritual.

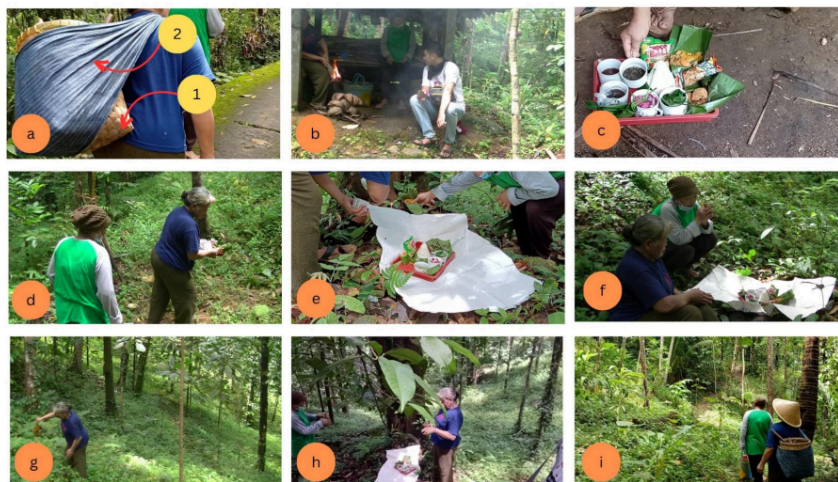


Figure 3. Stages of the *Wiwitan* Ritual. (a) The informants prepared the *ubarampe* at home and carried it using a *tenggok* (1) by being carried using a *jarik* (2) to the *wana*; (b) The *gubuk*, or shelter, where the informant rested when farming; (c) The informants arranged the *ubarampe* of the *Wiwitan*; (d) The informant brought the *ubarampe* to the oldest durian tree nearby; (e) The informants placed the *ubarampe* on a mat; (f) The informants prayed to God; (g) The informants checked the *wana*; (h) The informants performed *nggaoki*; and (i) The informants returned home after lunch in the *gubuk*, or shelter.

Table 1. *Ubarampe* of the *Wawitan* Ritual and Description of Species Used

Type of Ubarampe	Explanations	Local Javanese Name	Scientific Name	Genus	Family	Clade	Parts used
<i>Bonang-baning</i>	A container, such as a glass or bowl, with water, <i>Dadap serep</i> leaves, and small coins or small bills.	<i>Dadap serep</i>	<i>Erythrina subumbrans</i> (Hassk.) Merr.	<i>Erythrina</i>	<i>Fabaceae</i>	<i>Eudicots</i>	Leaf
<i>Sekar Setaman</i>	A container, such as a glass or bowl, with water, Roses, and small coins or small bills.	<i>Kembang mawar</i>	<i>Rosa</i> sp. L.	<i>Rosa</i>	<i>Rosaceae</i>	<i>Eudicots</i>	Flower
<i>Kinang</i>	<i>Enjet</i> (limestone), <i>Gambir</i> , Betel, and Tobacco are wrapped in banana leaves.	<i>Gambir</i>	<i>Uncaria guianensis</i> (Aublet) J.F. Gmelin	<i>Uncaria Schreber</i>	<i>Rubiaceae</i>	<i>Eudicots</i>	Sap of leaf and twig
		<i>Suruh Mbako</i>	<i>Piper betle</i> L. <i>Nicotiana tabacum</i> L.	<i>Piper Nicotiana</i> L.	<i>Piperaceae</i> <i>Solanaceae</i>	<i>Magnoliids</i> <i>Eudicots</i>	Leaf Leaf
<i>Rokok</i>	Tobacco leaves are sliced and combined with specific additives before being rolled using specially designed paper.	<i>Gedhang Mbako</i>	<i>Musa</i> sp. <i>Nicotiana tabacum</i> L.	<i>Musa</i> L. <i>Nicotiana</i> L.	<i>Musaceae</i> <i>Solanaceae</i>	<i>Monocots</i> <i>Eudicots</i>	Leaf Leaf
<i>Wedang kopi</i>	A beverage consisting of coffee and hot water.	<i>Kopi</i>	<i>Coffea</i> sp.	<i>Coffea</i> L.	<i>Rubiaceae</i>	<i>Eudicots</i>	Seed
<i>Wedang teh</i>	A beverage brewed from tea leaves and hot water.	<i>Teh</i>	<i>Camellia sinensis</i> (L.) Kuntze	<i>Camellia</i>	<i>Theaceae</i>	<i>Eudicots</i>	Leaf
<i>Wedang gebyur</i>	A beverage created using a combination of hot water and coconut sugar.	<i>Klapa</i>	<i>Cocos nucifera</i> L.	<i>Cocos</i>	<i>Aracaceae</i>	<i>Monocots</i>	Sap of flower
<i>Sega tumpeng</i>	The rice is cooked in the shape of a cone and uses a banana leaf base.	<i>Pari</i>	<i>Oryza sativa</i> L.	<i>Oryza</i>	<i>Poaceae</i>	<i>Monocots</i>	Seed
		<i>Gedhang</i>	<i>Musa</i> sp.	<i>Musa</i> L.	<i>Musaceae</i>	<i>Monocots</i>	Leaf
<i>Lawuh</i>	A dish comprised of tofu and tempeh.	<i>Dhele</i>	<i>Glycine max</i> (L.) Merr.	<i>Glycine</i>	<i>Fabaceae</i>	<i>Eudicots</i>	Seed
<i>Jangan</i>	A vegetable dish prepared with specific seasonings and variations. Typically, it includes sambal fried potatoes, fried noodles, and assorted vegetables.	<i>Kentang</i>	<i>Solanum tuberosum</i> L.	<i>Solanum</i>	<i>Solanaceae</i>	<i>Eudicots</i>	Tuber
		<i>Lombok</i>	<i>Capsicum annuum</i> L.	<i>Capsicum</i>	<i>Solanaceae</i>	<i>Eudicots</i>	Fruit
		<i>Sawi ijo</i>	<i>Brassica rapa</i> L.	<i>Brassica</i>	<i>Brassicaceae</i>	<i>Eudicots</i>	Leaf
		<i>Wortel</i>	<i>Daucus carota</i> L.	<i>Daucus</i>	<i>Apiaceae</i>	<i>Eudicots</i>	Tuber
		<i>Gandum</i>	<i>Triticum aestivum</i>	<i>Triticum</i>	<i>Poaceae</i>	<i>Monocots</i>	Seed
		<i>Bawang</i>	<i>Allium sativum</i> L.	<i>Allium</i>	<i>Amaryllidaceae</i>	<i>Monocots</i>	Bulbs
<i>Jajan rakan</i>	Snacks sold in markets or shops.	<i>Brambang</i>	<i>Allium cepa</i> L.	<i>Allium</i>	<i>Amaryllidaceae</i>	<i>Monocots</i>	
			In the form of processed snack products sold in markets or shops.				



Figure 4. Ubarampe of the Wiwitan Ritual (a) kinang; (b) rokok; (c) sekar setaman; (d) bonang-baning; (e) lawu; (f) jajan rakan; (g) wedang kopi; (h) wedang gebyur; (i) gembong; (j) wedang teh; (k) sega tumpeng; and (l) janggan

All types of *ubarampe* needed come from plants. Parts of plants are usually used as ritual complements for offerings (Sujarwo et al., 2020; Sutrisno et al., 2020). Parts of plants used in *Wiwitan* include leaf, tuber, seeds, bulbs, and flower. Some of these plants must be cooked before becoming processed products, such as *Gambir* (an extract of leaf and twig sap), *gula klapa* (a product of coconut flower sap), *tumpeng* (made from cone-shaped rice), and vegetables that are used as side dishes and entrées. *Gambir*, which is an aqueous extract of the leaves and young twigs of *Uncaria guianensis* (Anggraini et al., 2011), is a prime example. *Gula klapa*, or coconut sugar is derived from the concentrated and caramelized sap of coconut blossoms (Hebbar et al., 2015; Somawiharja et al., 2018).

Figure 4 displays an illustration of *ubarampe* of the *Wiwitan* ritual. The utilisation of local plants for spiritual purposes reflects the close relationship between local culture and local flora (Rahayu & Qurbaniah, 2024). The use of biodiversity, especially plants, has indeed been widely carried out by indigenous peoples in Indonesia,

such as for traditional ceremonies (Listantia & Sarjan, 2023; Rijal et al., 2024), ethnic or traditional food (Zahro et al., 2023), food ingredients (Has et al., 2023), and traditional medicine (Hamzah et al., 2023; Herlina et al., 2024). In fact, the use of plants can also be used by the community in making house architecture (Yusmerianti et al., 2023) and traditional costume colouring (Hu et al., 2022).

Educational video about ubarampe of the Wiwitan ritual

The diversity of plants used in the *ubarampe* of the *Wiwitan* ritual has potential as a learning resource for biodiversity topics. Biodiversity encompasses the categorization of organisms and their significance for human existence. Organizing objects, including organisms, ideas, or information, into groups is called classification (Chyleńska & Rybska, 2018). Everything that is intrinsic to biodiversity and advantageous for human existence constitutes the value of biodiversity (Gowdy, 1997). The classification and biodiversity topic is studied in grade X of high school.

In addition, *Wiwitan* ritual items can effectively instill spiritual values in students. Four spiritual values, namely altruistic, personal, divine, and affective values, can be derived from the ritual. Reliance on God represents an altruistic value that centers on consciously relying on and relating to God, often through prayer (Büssing et al., 2015). Another emerging value is selflessness, which represents a personal value. Selflessness is characterized by low levels of self-centeredness and self-interest (Dambrun & Ricard, 2011). The divine value that arises is piety, which refers to the act of obeying gods based on faith (MacGregor, 2001). The affective value that emerges is contentment, which is a conscious desire for a realized idea. It involves a dynamic interaction of various desires, needs, motives, cognitions, and emotions (Rojas & Veenhoven, 2013; Singh & Misra, 2020).

There are three spiritual values summarized in this *Wiwitan*. Firstly, as humans, we must take care of the nature surrounding the heritage of our ancestors. Secondly, we must express gratitude to God for all that is given. Thirdly, it is our duty to remember our ancestors, who imparted knowledge on utilizing biodiversity, particularly in agroecosystems. This spiritual value is essential for supporting character education among younger generations.

An endeavor to educate about *Wiwitan* rituals is underway to creating educational videos. Videos can serve as an effective teaching and learning tool (Evangelou, 2023). This particular video has been uploaded to YouTube for easy accessibility and a wider audience. It is highly beneficial for introducing the value of biodiversity and Indigenous knowledge to a broader spectrum. YouTube uploads have been employed successfully as a means for media-based learning (Adinugraha, 2022b; Rahmatika et al., 2021). The duration of the video is 9 minutes and 10 seconds. The video has been uploaded to the YouTube link: <https://youtu.be/Ld7LgiMNH8Y>. It is divided into three parts: an introduction to *Wiwitan*, a discussion of the various types of *ubarampe* of *Wiwitan* and their spiritual significance, and a conclusion emphasizing the importance of learning about biodiversity from *ubarampe* of *Wiwitan*.

This educational video is based on the theory of contextual teaching and learning. The content in the video is taken from the indigenous knowledge around us. Students can learn about biodiversity through the culture and plants used in *Ubarampe*. Students will be eager to learn when they find things that are related to the real world and arouse students' ability to discover something new (Parmithi & Mahendra, 2019). Jufrida et al. (2019) state that science can be linked to local wisdom

in the area through the creation of the content of teaching materials.

In addition, learning media used in learning activities also play a role in attracting students' interest in learning (Doyan et al., 2020). *Wiwitan*-related educational videos are expected to contribute to students' knowledge and attitudes. Elements contained in video media including sound, text, animation and graphics can support the achievement of competence in the cognitive, affective and psychomotor domains, and improve their interpersonal skills (Mulyani et al., 2024). Video can improve students' reasoning ability and attention which is trained by increasing visualisation power (Silfiani et al., 2022).

The limitation in this study is that the video uploaded until this article was made has 3,090 subscribers. Therefore, this educational video needs to be used as a learning media in the classroom. This media can be used as a tool to support biology learning with a local wisdom and culture approach. Biology learning with a local cultural wisdom approach can be studied using ethnobiology (Adinugraha, 2022a). This approach also has the potential to hone spiritual attitude competencies, social attitude competencies, knowledge competencies, and skills competencies (Adinugraha et al., 2021).

The topic of indigenous knowledge can be effectively taught through a collaborative project-based learning model (Adinugraha, 2024; Pratama et al., 2023), which has been demonstrated to facilitate the resolution of scientific learning challenges (Pratama et al., 2023). The issue of deficiencies in scientific process skills can be addressed through the creation of diverse, authentic learning resources (Doyan et al., 2020). The concept of *ubarampe* in *Wiwitan* represents a tangible body of knowledge that is situated within the immediate environment of the students. Learning about biodiversity and indigenous knowledge simultaneously through rituals can enhance students' awareness of the loss of biodiversity and culture around them.

Conclusion

The findings revealed that eleven types of *ubarampe* were utilized with eighteen plant species. Eighteen species of plants were also identified, including 11 eudicots, 6 monocots, and 1 magnoliids. The spiritual values that emerged consisted of altruistic, personal, divine, and affective values. The video was 9 minutes and 10 seconds long. The video was uploaded on the YouTube link <https://youtu.be/Ld7LgiMNH8Y>. Creating educational video and uploaded it on YouTube presents an alternative means of promoting the biodiversity value of the *Wiwitan* ritual. Future research is expected to produce learning designs, not just educational video media.

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Author Contribution

FA: designed the research concept, collected data, analysed data, wrote the article

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Conflict of interest

The author has no conflict of interest.

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