International Journal of Biology Education Towards Sustainable Development
Vol.4, No.1, 2024, pp. 9-20
e-ISSN 2809-5073. DOI. 10.52889/ijbetsd.v4i1.428

Ethnobotanical Study of Cosmetics of Baduy Community as a Recommendation for Biology Learning Content

Submitted 14 June 2024 Revised 21 June 2024 Accepted 26 June 2024

Mila Ermila Hendriyani[1], Yudiyanto Yudiyanto[2], Desi Eka Nur Fitriana[3*], Rifki Survani[4]

[1,3,4]Department of Biology Education, Faculty of Teacher Training and Education, Universitas Sultan Ageng Tirtayasa, Serang, Indonesia

[2]Department of Biology Education, FTIK, IAIN Metro Lampung, Metro, Indonesia

Corresponding Email: *desiekanf@untirta.ac.id

Abstract

The use of plants by local communities as ingredients for daily needs such as medicine, art, cosmetics and others is known as ethnobotany. In the context of cosmetics, ethnobotany is concerned with the use of plants in the formulation of natural beauty and skin care products. This research aimed to examine the use of plants as cosmetic ingredients by the Baduy people, an ethnic group in the Banten Province of Indonesia, which is famous for its local wisdom and strong traditions. Data was obtained through observation, interviews and literature study. Key informants were selected using purposive sampling and selected traditional leaders (*pu'un*), the inner Baduy community, the outer Baduy community, and elders in the Baduy tribe. Data were analyzed using descriptive analysis. The research succeeded in identifying 22 species of plants used for body care activities such as body scrubs, facial masks, eye moisturizers, teeth cleaners, powder, lip color, perfume, soap, shampoo and hair oil. Knowledge and habits regarding the use of this plant have been passed down from generation to generation to maintain healthy skin, teeth, eyes and hair. The implementation of this research is used as a recommendation as content in Biology learning, especially in the project to strengthen the Pancasila students Profile through the preparation of teaching modules with a culturally responsive teaching (CRT) approach as an effort to preserve traditional knowledge, promote sustainability in the use of natural resources, and develop potential environmentally friendly cosmetic products.

Keywords: Baduy, Ethnobotany, Cosmetic Ethnobotany, Pancasila Student Profile, Biology Learning

INTRODUCTION

The tradition of caring for the skin and body using cosmetics has become a habit for every woman in Indonesia. Cosmetics are materials used on the outside of the human body with the aim of cleaning, perfuming, changing appearance, improving body odor, protecting, and maintaining the body in good condition. Cosmetics have become a necessity, especially for women, to support physical beauty (Hakim et al., 2019).

The use of plants by local communities as ingredients for daily needs such as medicine, art, cosmetics, and others are known as ethnobotany. Ethnobotany is also defined as a scientific study activity involving the experience and traditional knowledge of the community to improve the quality of life and preserve the environment. This study has double benefits because, apart from being beneficial for humans and the environment, it is also useful for preserving the plant species used (Helmina & Hidayah, 2021). Plants can be used as skin care cosmetics for skin cleansing, moisturizing, and protecting the skin and are also useful for caring for teeth, nails, hair, etc. (Gayatri et al., 2015). Plant parts such as leaves, fruit, stems, and roots can be used because they contain nutritious chemical compounds (Agustina, 2017).

The use of plants as natural ingredients in beauty has been carried out for generations in Indonesia. For example, Lobi concoction is made by the people of Tanjung Village outside Lombok. This concoction is prepared from coconut meat that is burned, grated, mixed with water, then squeezed. The concoction is used by rubbing it on the hair (Marwa, et al. 2022). Meanwhile, the Banyuwangi People use coconut, henna, rice, gambier, areca nut, betel, rice and katuk plants (Anisfiani et al., 2014). Next there are Dayak Kanayatn, who use plants such as areca nut, aloe vera, mamuraja nail, kalapa, banana, guminting, mansauangan, longke, henna kuku, bingir, pariah, lalang, lingkodok, guava tokal, and betel (Noviantina et al., 2018). Not only that, the Baduy tribe also uses plants as natural cosmetic ingredients.

The Baduy tribe is one of the tribes in Banten Province, with a geographical and administrative position around the Kendeng Mountains in Kanekes Village, Leuwidamar District, Lebak Regency, Banten Province. The Baduy people deliberately "alienate themselves" from the outside world, settle down and close themselves off from external cultural influences that are considered negative with one goal, namely to fulfill the mandate of their ancestors. The Baduy people are also social figures who from time to time do not recognize changes like society in general who always follow developments with the times (Mahibah, 2023). The Baduy tribe really maintains the teachings about protecting nature and preserving it, this is what makes the Baduy people live side by side with nature in harmony (Suryani, 2014). Apart from that, the Baduy tribe reflects local wisdom in utilizing natural resources, one of which is for body care and beauty needs. This knowledge is passed down from generation to generation and involves various plants found in the environment around them.

The use of plants as natural cosmetic ingredients in the Baduy tribe has been passed down from generation to generation through tradition. This is knowledge that must be well documented and needs to be introduced to preserve local knowledge (Indigenous Knowledge) of the community about plants that can be used as a source of beauty care ingredients (Oktoba, 2018). One step that can be taken is through documentation, inventory and introducing it through education. Documentation and inventory of local knowledge through education has an important role in preserving cultural heritage. By including knowledge about the use of plants in the curriculum, schools can act as institutions that not only educate the younger generation, but also as keepers of valuable traditional knowledge (Pandapotan et al., 2018). The hope is that this legacy can continue and be appreciated by future generations,

Conservation or maintenance of local knowledge can also be done through integrating the results of ethnobotanical study inventories into biology learning. Ethnobotanical studies

can be used as contextual content used in learning. Contextual means real and in accordance with people's lives. Contextual learning will make it easier for students to understand learning material because the surrounding environment has an important role in learning activities (Harahap et al. 2023). Furthermore, the current educational curriculum in Indonesia, namely the Merdeka Curriculum, is very relevant to 21st century learning which focuses on the realm of knowledge and aspects of character, mastery of literacy, skills and technology and emphasizes the Pancasila students profile as a form of implementation.

The Pancasila Student Profile as part of the Independent Learning Curriculum is designed to describe the competencies that the Indonesian education system wants to produce with character (Nurhayati et al., 2022). The profile of Pancasila students really needs to be improved by pancasila student profile strengthening project. The Strengthening Project of Pancasila Students Profile was aimed to improve the quality of education in Indonesia, where through learning this project could realize student profiles with a Pancasila spirit which includes aspects of literacy and numeracy, excellent character for both school principals, teachers and students (Priandani et al. 2022). Apart from that, research by Akhyar, et al. (2024) stated that the Strengthening Pancasila Student Profile project is related to the quality of student character, meaning that the higher the value of the Strengthening Pancasila Student Profile project, the better the quality of student character.

Integrating the results of an inventory of local knowledge regarding the use of cosmetic plants in biology learning can help educators to create a more interesting, relevant learning experience for students, and also facilitate students to participate in preserving local wisdom and biodiversity in Indonesia. Various results of ethnobotanical research can be implemented in creating learning media (Due et al., 2014). Based on the explanation above, this research not only contributes to the development of science, but also has a positive impact in the educational context. The results of ethnobotanical studies of the Baduy people in their use of cosmetic plants can be integrated into biology learning. Thus, this research can make a significant contribution in developing biology education that is more relevant, contextual and meaningful for students.

METHOD

This research was conducted in December 2023 in the Baduy tribe located in Kanekes Village, Leuwidamar District, Lebak Regency, Banten Province, Indonesia. This research is a qualitative research. Data was obtained using a survey method through interviews and literature study. The interview technique uses an interview guide that contains questions about the main lines of discussion, but the questions asked are not the same for each participant

depending on the interview process and each individual's answers. Interview guidelines can guarantee researchers to obtain the same type of data from participants (Rahmawati, 2020). Literature studies are used to explore scientific information related to cosmetic ethnobotany and the integration of ethnobotanical studies in Biology Learning. Respondents in this study were selected using a purposive sampling technique, namely determining respondents deliberately based on certain criteria. The selected respondents were traditional leaders (*Pu'un*), the inner Baduy community, the outer Baduy community, and elders in the Baduy tribe.

The data collected in this research is primary data and secondary data. Primary data consists of the types of plants used by the Baduy Tribe for cosmetic ingredients, the parts of the plants used, how they are processed and used. Secondary data is in the form of implementation of ethnobotanical studies in education obtained through literature study and curriculum analysis. The data obtained was then analyzed using descriptive analysis.

RESULTS AND DISCUSSION

Plants used as cosmetics by the Baduy Tribe

The Baduy people are known for their lifestyle which is very close to nature. One important aspect of their life is the use of local plants for various daily needs, including in making traditional cosmetics. This knowledge was passed down from generation to generation and became an integral part of their culture. The results of the research show that there are 11 families consisting of 22 plant species that are used by the Baduy community as cosmetic ingredients. This research provides information about 22 plant species used by the Baduy people as plants used as cosmetics. Generally, the plants found are wild plants, but some are deliberately cultivated.

Zingebiraceae, arecaceae, fabaceae are the families with the most species found, namely four species, followed by the piperaceae family, namely two species, and the sapindaceae, bixaceae, balsaminaceae, Asteraceae, Annonaceae, Poaceae, Apocynaceae, and Ephorbiaceae families, which consist of one species. Zingiberaceae is a group of plants that is widely used by the Baduy people. This is because Zingiberaceae rhizomes contain essential oils which have many benefits and pharmacological activities (Sandy & Susilawati, 2021). In line with the opinion of Anisfiani et al. (2014) who stated that the rhizomes of the Zingiberaceae family contain many secondary metabolites such as alkaloids, flavonoids, saponins and essential oils which are widely used in the fields of cosmetics and medicine. Zingiberaceae is widely used for treatment by local Lampung communities around the Way Kambas National Park area (Yudiyanto et al., 2022).

International Journal of Biology Education Towards Sustainable Development
Vol.4, No.1, 2024, pp. 9-20
e-ISSN 2809-5073. DOI. 10.52889/ijbetsd.v4i1.428

The Baduy people use plants to care for their skin with the aim of tightening, brightening, and smoothing the skin, killing fungus on the skin, and making it into bath soap. The Baduy people also use plants to care for their hair, so it is black and soft, and are also used as shampoo. The lip and nail colors used also come from plants. Apart from that, plants are also used by the Baduy Tribe to care for and clean teeth, post-natal care, baby care, and brighten eyes due to mild irritation. The list of plants that have been identified can be seen in Table 1.

Table 1. List of plants used by the Baduy Tribe as cosmetic ingredients.

No.	Family	Species name	Indonesian name	Regional Name	Organs used	Benefit	Processing Method
1	**Piperaceae**	*Piper aduncum*	Sirih hutan	Ki anyar	Stem (water content in the stem)	Brightens eyes due to mild irritation	Use directly by dropping into the eyes
		Piper Bethle	Sirih	Sirih	Leaf	Caring for teeth	Directly used as a component in betel nut along with areca nut
2	**Zingiberaceae**	*Eltingera elatior*	Kecombrang	Honje	Leaf	Brightens skin (smooth)	Use it straight away and rub it into the skin
		Curcuma longa	Kunyit	Kunyit	Rhizome	Softens/ brightens baby's skin	Ground and applied to the skin
		Zingiber zerumbet	Lampuyang	Lampuyang	Rhizome	Tightens the skin after giving birth	Boiled and drunk, the water can be boiled together with sembung leaves
		Kaempferia galanga	Kencur	Cikur	Rhizome	Caring for facial skin	Smooth it and then apply it to your face to make a mask
3	**Arecaceae**	*Cocos nucifera*	kelapa	Kelapa	Fruit	Fiber is used as a substitute for a toothbrush	The coir is crushed first, then rubbed onto white rock (as a substitute for toothpaste)
		Arenga pinnata	Aren	Kawung	Leaf sheath	As powder	Burn it and then take the ashes
		Cocos nucifera	Kelapa hijau	kelapa hijau	Fruit (flesh)	Blackens hair (applied to hair)	Grated coconut is then cooked until it becomes coconut oil
		Areca catechu	Pinang	Buah Pinang	Fruit	Caring for teeth	One of the components in betel nut.

No.	Family	Species name	Indonesian name	Regional Name	Organs used	Benefit	Processing Method
4	**Fabaceae**	*Flemingia macrophylla*	Hahapaan	Hahapaan	Leaf	Cleans fungus on the skin	Rub it into the moldy part of the skin
		Cajanus cajan	Hiris	Ki hiris	Leaf	Bath soap	The leaves are crushed and rubbed on the body
		Pterocarpus indicus	Angsana	Angsana	Rubber (latex)	Lip color	The sap is applied to the lips
		Albizzia procerra	Weru	Pohon ki hiyang	Trunk (bark)	Skin medicine	Boil it, after the water turns red, apply the water using a cloth to the skin. Can also soften the skin.
5	Sapindaceca e	*Sapindus Rarak*	Lerak	rerek	Fruit	Used as shampoo	Break it up a little and then rub it into your hair
6	Bixacae	*Bixa Orellana*	Kesumba Keling	Galuga	Fruit	Lip color	The fruit is applied to the lips
7	Balsaminace ae	*Impatiens balsamina*	Pacar air	Pacar air	Leaf	Nail coloring	Grind it finely and then apply it to your nails
8	asteracae	*Blumea balsamifera*	Sembung	sembung	Leaf	Tighten the stomach after giving birth	Boil it then drink the water
9	Annonaceae	*Cananga odorata*	Kenanga	Kenanga	Flower	As body freshener (perfume)	Apply directly to the body or mix with cooking oil and then rub on
10	Poaceae	*Oryza sativa*	Padi	Padi	Seed	Smooth skin	Smooth it, rub it into the skin
11	Apocynacea e	*Alstonia scholaris*	Pohon Pule	Pohon lame	Trunk (bark)	Tightens the skin after giving birth	Boiled and drunk, the water can be boiled together with sembung and lampyang leaves

No.	Family	Species name	Indonesian name	Regional Name	Organs used	Benefit	Processing Method
12	Euphorbiaceae	*Mallotus moritzianus*	Leuksa	Leuksa	Leaf	shampoo	Ground it, then use it as a herbal shampoo

The parts of plants used as cosmetics by the Baduy Tribe also vary, from rhizomes, stems, leaves, fruit, roots, flowers, seeds, and sap. The most widely used plant parts are leaves (8 species), fruit (5 species), stems (3 species), rhizomes (3 species), flowers (1 species), flowers (1 species), and sap (1 spesies) (Figure 1).

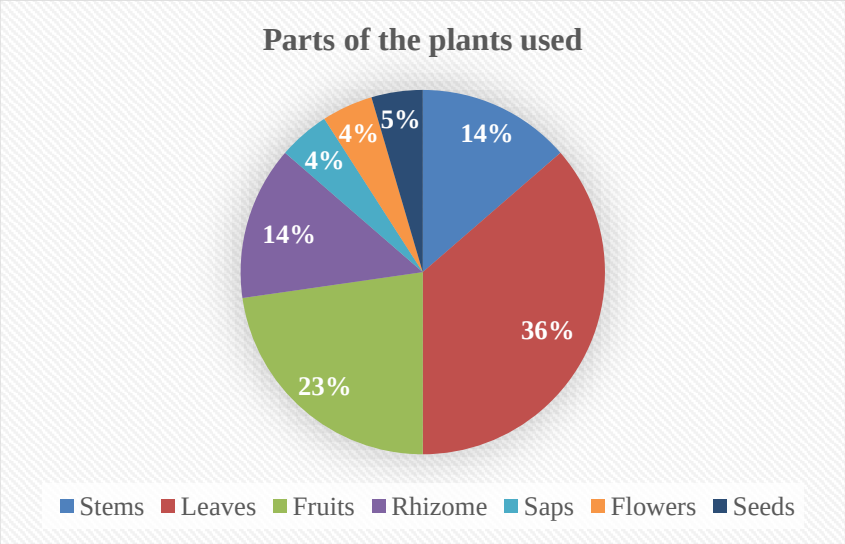

Figure 1. Percentage of plant parts used by the Baduy community.

The most widely used part is the leaves. This is because the leaves are an organ where photosynthate accumulates which contains essential oils, essential oils have anti-aging properties which are very useful as beauty care ingredients (Anisfiani et al., 2014). Leaves emerged as the most used plant parts, with decoction and infusion being the predominant preparation methods. This finding is in line with the results of research conducted by El-Mersini et al. (2024) that the process of processing plants into cosmetic ingredients by the Baduy Tribe is very simple and natural. The Baduy people usually use plants for cosmetics directly or through a process of pounding or mashing them then applying them, boiling them then smearing them or burning them then pounding them and spreading them on.

Integration of the results of cosmetic ethnobotanical studies in Biology Learning

Biology learning does not always come from classroom learning. Learning from nature is another way to study the natural resources around you (Hidayah & Al-Hakim, 2022). Ethnobotanical studies of cosmetics can be used as biology learning content. The integration of ethnobotany can play a very important role in providing students with insight into how

plants are used by society as cosmetic ingredients to care for the body. In biology learning, ethnobotanical studies can be included in biodiversity material, including in the Merdeka Curriculum learning outcomes in phase E, namely that students could create solutions to problems based on local, national, or global issues related to understanding the diversity of living things and their roles, viruses and their roles, biological technological innovation, ecosystem components and interactions between components and environmental changes. Ethnobotanical studies in biology learning help students understand the diversity of plants in various ecosystems and the plants used by local communities. This can increase students' attention to the importance of utilizing and conserving biodiversity.

The implementation of the Independent Curriculum in educational units prioritizes project-based learning to realize the Pancasila Student Profile. The Pancasila Student Profile is an output or graduate who has character and competence so that he can strengthen the noble values of Pancasila which has six dimensions, namely: faith, devotion to God Almighty and noble character, global diversity, cooperation, independence, critical reasoning, creativity (Inayati, 2022). In the education system in Indonesia, especially in the context of the Pancasila Student Profile Strengthening project, the use and preservation of local knowledge is very relevant and can strengthen these values (Santika, 2022). This is in line with the opinion of Siregar et al. (2023) the introduction of cosmetic plants can be used as a project to support the Pancasila student profile which emphasizes cooperation, creativity, and local wisdom. The integration of ethnobotanical studies in biology learning can provide double benefits, namely enriching students' knowledge about biodiversity and the uses of plants, as well as preserving local cultural heritage.

Ethnobotanical knowledge can also be integrated into learning by creating teaching materials using ethnobotanical content so that it can simultaneously display the local wisdom of an area. Learning using teaching materials based on local wisdom shows good results in student learning activities (Suwarni, 2015). Furthermore, the research results of Hadi et al. (2022) shows that there is a significant influence regarding students' higher order thinking abilities and environmental care attitudes between students who are taught using teaching materials developed based on local wisdom and those taught using ordinary textbooks. The open materials in question can be in the form of handouts, learning modules, pocketbooks, and so on. Other integration can be done using learning methods that can activate students, such as projects, experiments, and field activities such as field trips. Through this learning method, it will stimulate students' abilities to identify, collect and process plants around where they live to make natural cosmetic products. Apart from that, it can also be done using the

case study method. The research results of Suwono et al. (2017) shows that case-based socio-biological learning can improve students' biological literacy and critical thinking skills.

Efforts to integrate the results of studies on the use of plants as cosmetics by the Baduy community can also be done by implementing a Culturally Responsive Teaching (CRT) approach in the teaching and learning process. CRT is an approach to education that aligns with meaningful learning. CRT emphasizes local cultures surrounding students, not just ancestral heritage (Nicol et al., 2013). The integration of ethnobotanical studies in learning using the CRT approach is a new effort that is effective and relevant because knowledge can be directly connected to the rich culture and customs of a region so that the knowledge received by students is directly connected to the material being studied. Gay (2015) defines CRT as using the inherited experiences and perspectives of different ethnic and racial groups to teach students to understand their culture. In terms of student competency, CRT also allows students to be actively involved in both communicating and collaborating with their friends so that it can improve student learning outcomes (Khasanah et al., 2023)

Implementing the CRT approach in biology learning with cosmetic ethnobotany study content can be done through creating interesting and relevant learning plans or teaching modules. The application of CRT can be combined with learning models. One learning model that can be combined with this approach is the Project Based Learning (PjBL) learning model. The research results of Siskawati et al. (2023) stated that applying the CRT approach through the PjBL model in the learning process can improve student learning outcomes. Projects that can be carried out can be collaborative projects that facilitate students to collect data or study ethnobotanical knowledge from the community through observation, documentation, or interview methods. Apart from that, other projects can be carried out through practitioner learning by presenting resource persons who are experts in the field of ethnobotany. This cultural integration in learning provides benefits for students so that students can understand the material in depth because students are the center of the learning process. Thus, the use of cosmetic plants in ethnobotanical studies becomes a scientific study, as well as being the right step to enrich biology curriculum content, support contextual learning, and preserve local knowledge and culture through education.

CONCLUSION

The Baduy people are known for their lifestyle which is very close to nature. The Baduy community uses plants as cosmetics to care for the body, such as body scrubs, facial masks, eye moisturizers, teeth cleaners, powder, lip color, perfume, soap, shampoo, and hair oil. Knowledge and habits regarding the use of this plant have been passed down from

generation to generation. Research succeeded in identifying 22 plant species that are used to care for skin, teeth, eyes, and hair. The use of cosmetic plants by the Baduy people is a valuable study of traditional knowledge and biodiversity and has the potential to become rich and relevant content for culture-centered biology learning. Integration of ethnobotany in the biology curriculum can increase student engagement, deepen their understanding of biology, and strengthen their appreciation for local cultural knowledge and practices.

REFERENCES

Anisfiani, Winda, Asyiah, Iis Nur, & Aprilya, Sulifah. (2014). Etnobotani bahan kosmetik oleh masyarakat Using Di Kabupaten Banyuwangi sebagai bahan ajar populer. Pancaran Pendidikan, 3(3), 53–62.

Agustina, W., Nurhamidah, N., & Handayani, D. (2017). Skrining Fitokimia Dan Aktivitas Antioksidan Beberapa Fraksi Dari Kulit Batang Jarak (Ricinus communis L.). ALOTROP, 1(2).

Due, R., Swisna, S., & Marlina, R. (2014). Etnobotani Tumbuhan Obat Suku Dayak Pesaguan Dan Implementasinya Dalam Pembuatan Flash Card Biodiversitas. Jurnal Pendidikan Dan Pembelajaran Khatulistiwa (JPPK), 3(2), 545–555. https://doi.org/10.26418/JPPK.V3I2.4616.

Gay, G. (2015). The what, why, and how of culturally responsive teaching: International mandates, challenges, and opportunities. Multicultural Education Review, 7(3), 123–139.

Gayatri A. A. I. R., Eniek, K., dan I Gusti, A.S. W. 2015. Jenis-jenis Tumbuhan yang Digunakan Sebagai Bahan Perawatan Kecantikan di Puri Damai Desa Singakerta Kecamatan Ubud Kabupaten Gianyar, Jurnal Simbiosis 3 (1), 281-290.

Hadi, K., Dazrullisa, Susantini, E., & Kuntjoro, S. (2022). The Influence of Environment-based Biology Learning Integrated with Local Wisdom and Character Education on Student's Higher Order Thinking Skills and Environmental Care Attitude. International Journal of Early Childhood Special Education. DOI:10.9756/int-jecse/v14i1.221079.

Hakim, Arif Rahman, Daviya, Muhamad, & Fauzi, Nur. (2019). Industri Kosmetik dan Manfaat Bagi Konsumen Kosmetik di Indonesia. Majoring In Chemistry Faculty of Math nd Science Padang State University, 1(1), 1–23

Helmina,S., Hidayah, Y. 2021. Kajian Etnobotani Tumbuhan Obat Tradisional Oleh Masyarakat Kampung Padang Kecamatan Sukamara Kabupaten Sukamara. Jurnal Pendidikan Hayati, 7(1), 20 – 28

Hidayah, H.A. & Al-Hakim, R.R. (2022). Etnobotani: Belajar dari Pemanfaatan Tumbuhan Liar. Sintesa: Jurnal Ilmu Pendidikan, 17(1), 8-14.

Inayati, U. 2022. Konsep dan Impelementasi Kurikulum Merdeka pada Pembelajaran Abad-21 di SD/MI. International Conference on Islamic Education Vol 2, 293-304.

Istiqomah, Nurul, Hanifa, Nisa Isneni, & Sukenti, Kurniasih. (2021). Study of Ethno Cosmetics Natural Care of Batujai Village Community, West Praya, Central Lombok. Jurnal Biologi Tropis, 21(1), 32–41.

Khasanah, I. M., Nuroso, H., Pramasdyahsari, A. S. 2023. Efektifitas Pendekatan Culturally Responsive Teaching(Crt) Untuk Meningkatkan Hasil Belajar Siswa Kelas Ii Sekolah Dasar. *Alifbata: Jurnal Pendidikan Dasar* 3(2).

Marwa, S., Hasina, R., & Sunarwidhi, A. L. 2022. Studi Etnobotani Bahan Kosmetik Asli Masyarakat Desa Tanjung Luar Kabupaten Lombok Timur, Indonesia. SOSAINS: Jurnal Sosial dan Sains, 1(2), 77-88. DOI: https://doi.org/10.59188/jurnalsosains.v2i1.314

Muhibah, S. & Rohimah, R. B. 2023. Mengenal Karakteristik Suku Baduy Dalam dan Suku Baduy Luar. JAWARA-Jurnal Pendidikan Karakter, 9 (1), 73-85.

Nicol, C., Archibald, J. ann, & Baker, J. (2013). Designing a model of culturally responsive mathematics education: Place, relationships and storywork. Mathematics Education Research Journal, 25(1), 73–89. https://doi.org/10.1007/s13394-012-0062-3

Noviantina, E., Linda, R., & Wardoyo, E. R. P. (2018). Studi Etnobotani Tumbuhan Kosmetik Alami Masyarakat Suku Dayak Kanayatn Desa Sebatih Kecamatan Sengah Temila Kabupaten Landak. Jurnal Protobiont, vol.7(1), hal. 61-68.

Oktoba, Z. (2018). Studi Etnofarmasi Tanaman Obat Untuk Perawatan Dan Penumbuh Rambut Pada Beberapa Daerah di Indonesia. Jurnal Jamu Indonesia, 3(3), hal. 81–88.

Perwitasari, Wahjoedi, Akbar. 2018. Pengembangan Bahan Ajar Tematik Berbasis Kontekstual. Jurnal Pendidikan, Vol. 3 (3), 278-285.

Pandapotan, S., Khairat, K., & Syahril, S. (2018). Inventarisasi Kearifan Lokal Etnis Karo dalam Pemanfaatan Etnobotani di Kabupaten Karo. Journal of Education, Humaniora and Social Sciences (JEHSS), 1(1), 40–47. https://doi.org/10.34007/jehss.v1i1.6

Rahmawati, R. (2020). Analisis Halal Media Terhadap Perusahaan Siaran MQFM. Jurnal Likuid, 1(1), 91–97.

Sandy, P. M., & Susilawati, Y. (2021). Review Artikel: Manfaat Empiris Dan Aktivitas Farmakologi Jahe Merah (Zingiber officinale Roscoe), Kunyit (Curcuma domestica Val.) dan Kencur (Kaempferia galanga L.). Farmaka, 19(2), 36–47.

Santika, I. W. E. (2022). Penguatan Nilai-Nilai Kearifan Lokal Bali dalam Membentuk Profil Pelajar Pancasila. Jurnal Pendidikan Dan Konseling, 4(4), 1349–1358. https://doi.org/10.31004/JPDK.V4I4.6472

Siregar, A., Amanda, S., Rambe, A. R., Aulia, P., & Ramadani, S. (2023). Pemanfaatan Tanaman Lingkungan Sekolah Dalam Upaya Mengenalkan Projek Penguatan Profil Pelajar Pancasila. PRODIKMAS Jurnal Hasil Pengabdian Kepada Masyarakat, 8(2), 26–31.

Siskawati, Lestar, T. A., Handayani, B. S., Hadratullaili. 2023. Implementation Culturally Responsive TeachingApproach to Improve Student Learning Outcomes. *Biota:Bio&PendBio*16(2), 112-119.

Surraya, S., Patonah, S., Sumiyatun. 2024. Pengaruh Pendekatan Culturally Responsive Teaching (CRT) Untuk Meningkatkan Berpikir Kritis Peserta Didik Kelas IV SDN Peterongan Semarang. COLLASE: Creative of Learning Students Elementary Education. Journal of Elementary Education, 7(4), 2014-222.

Suryani, I. 2014. Menggali Keindahan Alam Dan Kearifan Lokal Suku Baduy (Studi Kasus Pada Acara Feature Dokumenter "Indonesia Bagus" Di Stasiun Televisi Net.tv). Musãwa: Jurnal Studi Gender dan Islam, 13(2), 179-194. DOI: 10.14421/musawa.2014.132.179-194.

Suwono, H., Pratiwi, H., Susanto, H., & Susilo, H. (2017). Enhancement of Students' Biological Literacy and Critical Thinking of Biology through Socio-Biological Case-Based Learning. Jurnal Pendidikan IPA Indonesia, 6(2), 213-220. doi:https://doi.org/10.15294/jpii.v6i2.9622.

Wahyuni, H. I., Shoukat, N., & Romadhon, N. (2023). Inventarisasi Pemanfaatan Tumbuhan Dan Relevansinya Sebagai Sumber Pembelajaran Ekopedagogik Berbasis Kearifan Lokal. Didaktika Biologi: Jurnal Penelitian Pendidikan Biologi, 7(1), 23. https://doi.org/10.32502/dikbio.v7i1.5709

Yudiyanto. Hakim, N, and Wakhidah, AZ. (2022). Ethnobotany of medicinal plants from Lampung tribe around way kambas national park, Indonesia. Nusantara Bioscience (2022): 84-94.