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Development of Animated Video-Based Educational Media on the Use of Traditional Medicinal Plants for Family Health

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Abstract: This study aimed to develop an animated video-based educational medium on the use of traditional medicinal plants for family health and to evaluate the product validity and initial user responses. The study employed a Research and Development (R&D) approach based on the Thiagarajan 4D development model. The research stages included define, design, develop, and limited disseminate. Product validity was assessed by four validators, consisting of two subject-matter experts and two media experts, while the user response test involved 72 respondents aged 18–50 years in Ternate City. Data were collected using validation questionnaires and user response questionnaires based on a Likert scale, and were then analyzed descriptively in percentage form. The results showed that the material validity reached 92% and the media validity reached 91%, both of which were categorized as very valid. User responses obtained an average score of 81.11%, indicating that the medium was positively received and feasible for use as a supporting educational tool. These findings indicate that the developed animated video met the criteria for content feasibility, language quality, visual presentation, and ease of use at the limited testing stage. Therefore, the developed medium can be used as a means of family health education.
Keywords: Media; video; animation; medicinal plants

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INTRODUCTION

Traditional medicinal plants refer to plant species that have long been used to treat various diseases through inherited knowledge and customary practices. Traditional medicine systems rely on plants because they contain diverse therapeutic properties that may contribute to healing (Jha et al., 2024). The use of medicinal plants as part of family health care remains common across many cultures, particularly in Indonesia, a country well known for its rich biodiversity (Rahayu et al., 2020). Knowledge regarding the medicinal properties of plants and their methods of use is generally transmitted orally from one generation to another. As a result, traditional remedies are deeply embedded in cultural practices and often reflect a close interaction between indigenous knowledge and locally available natural resources (Chitra, 2022). In recent decades, interest in traditional medicine has continued to increase because it is often perceived as more natural, affordable, and associated with fewer side effects than synthetic drugs (Sari & Wahyuni, 2019).

Medicinal plants can be classified according to their therapeutic properties, such as anti-inflammatory, antimicrobial, analgesic, and antioxidant activities. Different plant parts may be used for medicinal purposes, including the roots, stems, leaves, flowers, fruits, or even the entire plant (Jha et al., 2024). Herbal medicines may be administered orally, applied topically, or inhaled, depending on the intended use and the expected physiological response to chemical compounds or stimuli (Hamzari, 2008). Despite their widespread use, public knowledge regarding the diversity of medicinal plants and their proper utilization remains limited, indicating the need for more effective

educational efforts (Susiarti, 2015a; Susiarti, 2015b). In Indonesia, the use of medicinal plants is also influenced by several factors, including perceptions of illness, access to health services, family support, and the promotion of traditional medicine (Theresiana et al., 2018). In North Maluku, this wealth of local knowledge is reflected in ethnobotanical findings from Moti Island, where numerous useful plant species, including medicinal plants, have been documented as part of community practice (Setiawan et al., 2023).

However, the use of medicinal plants in family settings is still constrained by health literacy challenges. Information about plant species, the parts used, simple preparation methods, and safety considerations is often obtained orally and is not always available in educational media that are clear and easy to understand. Consequently, community members may know that a plant is beneficial without fully understanding its specific indications, correct methods of use, or the circumstances in which professional medical assistance is still required. This situation highlights the need for educational media that are not only informative but also concise, communicative, and appropriate for family-level users.

One promising approach to addressing this issue is the use of animation-based educational media. Animated videos offer an innovative means of improving public understanding of the benefits and proper use of traditional medicinal plants (Utami et al., 2022). This medium enables information to be delivered in an engaging, interactive, and easily understandable manner, making it accessible to a wide range of age groups (Nugraha et al., 2020). In addition, dynamic visual presentation can help overcome literacy barriers that often limit comprehension of written health information (Hidayat et al., 2021). Therefore, the development of animation-based educational media on the use of traditional medicinal plants for family health represents a strategic effort to improve public awareness and strengthen community self-reliance in maintaining health (Sari & Wahyuni, 2019).

Based on this background, this study aimed to develop an animation-based educational video on the use of traditional medicinal plants for family health and to evaluate its product validity and initial user responses.

METHOD

This study employed a research and development (R&D) approach based on the Thiagarajan 4D development model. The stages of the study comprised define, design, develop, and disseminate. In this study, the disseminate stage was conducted on a limited basis to obtain initial user responses; therefore, the research did not proceed to large-scale field effectiveness testing. This model was selected because of its suitability for producing educational or instructional products that are systematically validated before broader implementation.

Define Stage

The define stage involved identifying the initial needs for developing animation-based educational video media, determining the target users, and formulating the scope of the content. The target audience consisted of families or members of the general public aged 18–50 years who required practical information on traditional medicinal plants for managing minor health complaints in the context of family health. The scope of the material was limited to the introduction of family medicinal plants, their general benefits, the plant parts used, simple methods of utilization, and a cautionary message emphasizing that the information presented in the video is educational in nature and does not replace medical consultation.

Design Stage

The design stage included audience identification, selection of medicinal plants, and a literature review, resulting in a product design in the form of a media blueprint, storyboard, narration script, scene sequence, visual design, and assessment instruments. The media design also took into account the principles of visual clarity, color appropriateness, audio-visual synchronization, and the use of simple language to ensure ease of understanding for users.

Develop Stage

The develop stage was carried out through animation video production, voice-over recording, editing, expert validation, and product revision. Validation was conducted by four validators consisting of two content experts and two media experts from the Faculty of Teacher Training and Education, Khairun University. The content experts assessed aspects of content feasibility, language, presentation, graphics, and usefulness, whereas the media experts evaluated media design and features, usability, visual communication, and graphics. Feedback from the validators was used to improve overly technical terminology, reinforce cautionary messages regarding use, and enhance synchronization among narration, text, and visual illustrations.

Limited Disseminate Stage

The limited disseminate stage was conducted through a user response test involving 72 respondents in Ternate City. Respondents were selected using a non-probability sampling technique based on their willingness to participate in the limited trial and their compliance with the inclusion criteria, namely being 18–50 years of age, able to access the video via a mobile device, and willing to complete the questionnaire in full. This test was intended to obtain a preliminary overview of media acceptability rather than to measure the impact of the intervention experimentally.

The study was conducted from February to October 2025. The research subjects were families or individuals aged 18–50 years who constituted the target audience for the educational intervention. The research instruments consisted of expert validation sheets and a user response questionnaire using a 5-point Likert scale. The user response questionnaire included indicators related to interest in watching the video, animation quality, ease of understanding the information, the usefulness of the video in understanding the benefits of family medicinal plants, knowledge gain, and overall evaluation of the feasibility of the video. In this limited development study, the instruments were reviewed for content validity by experts in accordance with the study objectives. Construct validity testing and statistical reliability analysis, such as Cronbach's alpha, were not conducted because the study focused on initial product validation; these procedures are recommended for future research on a broader scale.

The data were analyzed descriptively by calculating the feasibility percentage as follows:

$$\textbf{Feasibility Percentage} = (\textbf{Obtained Score}/\textbf{Maximum Score}) \times 100\%$$

Table 1. Criteria for interpreting product validity

Percentage	Category	Interpretation
85.01–100.00%	Very valid	Can be used without major revision
70.01–85.00%	Valid	Can be used with minor revision
50.01–70.00%	Less valid	Requires substantial revision
≤50.00%	Invalid	Not yet suitable for use

Source: adapted from Akbar (2013).

RESULTS AND DISCUSSION

This study on the development of animation-based educational video media concerning the use of traditional medicinal plants for family health adopted the Thiagarajan 4D development model, which consists of the **define, design, develop, and disseminate** stages.

At the **define** stage, the study focused on identifying the initial needs for developing animation-based educational media on the use of traditional medicinal plants for family health. The activities conducted included analysis of user needs, target audience characteristics, conceptual analysis of the material, and analysis of problems faced by the community in obtaining accurate, understandable, and engaging information related to the use of traditional medicinal plants. The initial analysis indicated the need for communicative and visually oriented learning media to improve public understanding and interest in the use of medicinal plants. Based on these findings, the initial specifications for the media were established in the form of an animated video presenting information on medicinal plants in a systematic, simple, and contextual manner. The content included in the animation was adjusted to the conditions and needs of the community and was expected to improve family health literacy. This stage served as the foundation for designing educational media appropriate to user characteristics.

At the **design** stage, activities were primarily focused on translating the results of the initial investigation into a product design in the form of an animated video, both in format and structure, tailored to the characteristics of the target users. The design process involved systematically developing the media concept, including selecting the core material on traditional medicinal plants, formulating appropriate educational messages, determining the sequence of content presentation, using communicative language, and selecting an animation style expected to enhance audience understanding and interest. This stage also included the preparation of the storyboard and video script as references for media development, covering the sequence of animations, visual illustrations, narration text, and other supporting elements. The purpose of this design process was to produce animated video media that are not only informative but also attractive and easy to understand, so that they can function optimally as educational tools for introducing the use of traditional medicinal plants for family health. In addition, this stage determined the media format, video duration, and presentation structure, including an introduction to medicinal plants, their benefits for family health, and simple and safe methods of use. Assessment instruments to be used during the development and evaluation stages were also planned at this stage.

The **development** stage represented the realization of the design into an animation-based educational media product. At this stage, the animated video was produced based on the storyboard and script prepared previously. The process included animation production, voice-over narration recording, addition of visual illustrations, and integration of audio and visual components into a complete educational medium. The developed product then underwent a validation process to determine its feasibility by assessing its content and readability through expert review by subject-matter experts and media experts. Material expert validation focused on the accuracy of information concerning the types of medicinal plants, their benefits, and their safe use for family health. Media expert validation, meanwhile, assessed technical aspects such as animation quality, visual and audio clarity, design integration, language use, and the suitability of the media for the target audience. Feedback and suggestions from the validators were used as the basis for revising the product so that the resulting media would be academically and technically appropriate. Data were

collected using validation questionnaires and user response questionnaires based on a Likert scale and were then analyzed descriptively in percentage form.

The material validation sheet included five assessed aspects, namely content feasibility, language, presentation feasibility, graphics, and usefulness. The media validation sheet included four assessed aspects, namely media design and facilities, usability, visual communication, and graphics. The results of material expert validation are presented in Table 1, while media expert validation results are shown in Table 2.

Table 1. Results of material validation for the animated video on traditional medicinal plants

No.	Assessment Aspect	Percentage	Category
1	Content feasibility	82	Valid
2	Language	96	Very valid
3	Presentation	87	Very valid
4	Graphics	98	Very valid
5	Usefulness	97	Very valid
	Average	**92**	**Valid**

Based on the assessment results for the animation-based educational media on the use of traditional medicinal plants for family health, an average score of 92% was obtained, which falls within a very high category. This indicates that the developed media are of excellent quality and feasible for use as an educational tool. This finding is consistent with Aisah et al. (2021), who reported that animated videos are effective in increasing knowledge on health-related topics. In addition, animated videos are visually appealing and easy to understand, simplify complex information, and can be accessed by both children and adults. In detail, the content feasibility aspect obtained 82%, which falls into the valid category, indicating that the material presented is appropriate to user needs. The language aspect received 96%, categorized as very valid, indicating that the language used in the animated video is clear, communicative, and easy to understand. The presentation aspect obtained 87%, indicating that the sequence of content delivery was systematically arranged. Furthermore, the graphics and usefulness aspects obtained 97% each, both categorized as very valid, indicating that the visual appearance of the animated video was highly attractive and that the media were considered highly beneficial in improving public understanding of the use of traditional medicinal plants for family health.

These findings suggest that the educational message was structured in a focused and understandable manner and supported by appropriate visual presentation. This interpretation is consistent with multimedia principles, which emphasize that concise, well-structured, and well-aligned narration and visuals can support more meaningful information processing (Mayer, 2022; Mahajan et al., 2020). From a theoretical perspective, the use of animated video in this study is relevant to Dual Coding Theory and the Cognitive Theory of Multimedia Learning. Visual representations through moving illustrations and verbal representations through narration enable users to process information through two different yet complementary channels (Clark & Paivio, 1991; Mayer, 2022). Therefore, animation-based media have the potential to be an appropriate strategy for simplifying family health information that was previously understood orally or disseminated in unsystematic explanatory forms. The use of animated videos can also support the transmission of traditional knowledge about medicinal plants within families, ensuring that this valuable information is preserved

and passed down across generations (Mendieta et al., 2014). By integrating traditional practices with modern educational tools, animated videos can bridge intergenerational gaps and promote the sustainable use of medicinal plants (Mendieta et al., 2014; Brito et al., 2024).

Table 2. Results of media validation for the animated video on traditional medicinal plants

No.	Assessment Aspect	Percentage	Category
1	Media design and facilities	92	Very valid
2	Usability	92	Very valid
3	Visual communication	91	Very valid
4	Graphics	87	Very valid
	Average	**91**	**Very valid**

The media validation results showed an average score of 91%, categorized as very valid, indicating that the animated video media were suitable for use without major revisions. According to Arciniegas Martinez (2019), animated videos can be used to introduce traditional medicinal plants and offer many benefits to the community, particularly in increasing public understanding and appreciation of natural resources. The use of engaging animated videos can help communities better understand the importance of medicinal plants, leading to increased utilization and conservation efforts. The highest percentages were found in the aspects of media design and facilities and usability, both at 92%, indicating that the media were functionally designed, easy to use, and supportive of user needs. Effective animation can direct attention, clarify complex information, and create a more immersive experience, thereby helping users better understand the message being conveyed (Tang et al., 2020). The visual communication and graphics aspects were also categorized as very valid, indicating that the visual elements were able to deliver messages effectively and attractively, with percentages of 91% and 87%, respectively. Visual communication and graphics play an important role in the success of animation media by enhancing message delivery and audience engagement. Effective visual strategies not only attract attention but also facilitate comprehension and information retention (Hasbullah et al., 2024; Filley, 1982). Thus, the developed animated video media meet the validity standards of learning media and have the potential to support improved public understanding of the use of traditional medicinal plants.

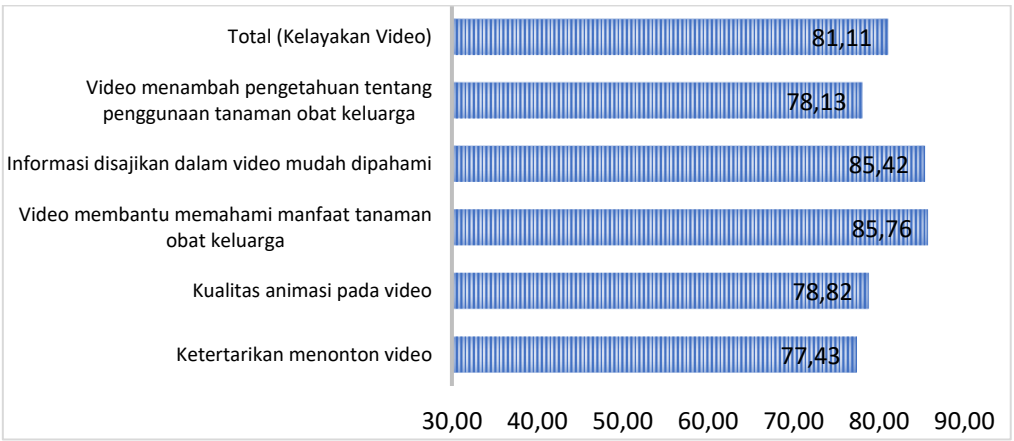

Figure 1. User responses to the animated media

Based on the survey results regarding the animated video on traditional medicinal plants for family health, the overall feasibility score of the video was 81.11%, which falls into the very feasible category. This result indicates that the developed animated video was generally evaluated positively and met the criteria as a family health education medium. In terms of material comprehension, the indicator stating that the video helped users understand the benefits of family medicinal plants received the highest score, at 85.76%, followed by the indicator that the information presented in the video was easy to understand, with a score of 85.42%. The high percentages for these two indicators demonstrate that the presentation of material in the animated video was effective in improving respondents' understanding of the benefits and use of traditional medicinal plants. Animated videos are visually attractive and can simplify complex information, thereby making it easier for the public to understand the benefits and use of traditional herbal medicine (Aisah et al., 2021). This pattern suggests that the main strength of the media lies in message clarity rather than merely visual appeal. This finding is consistent with Meppelink et al. (2015), who showed that a combination of simple animation and spoken messages helps groups with low health literacy understand complex health information. More broadly, Hansen, S. (2024) also reported that the majority of randomized studies included in their systematic review found improved recall of health information following the use of animated videos.

The indicator stating that the video increased knowledge about the use of family medicinal plants obtained a score of 78.13%, which falls into the feasible category. This suggests that the video was not only informative but also contributed to improving respondents' knowledge regarding the use of medicinal plants in the context of family health. In terms of appearance and attractiveness, the indicator related to animation quality obtained a score of 78.82%, while interest in watching the video scored 77.43%. Although both indicators still fall within the feasible category, their values were relatively lower than those of the material comprehension aspects. This indicates that although the animation and visual presentation of the video were sufficiently good and appealing, there remains room for improvement to further optimize audience engagement.

Nevertheless, this study cannot conclude that the animated video has been proven to improve knowledge or change health behavior. Positive user responses only indicate that the media were considered feasible, understandable, and acceptable in a limited trial. This limitation is important to emphasize in order to avoid overclaiming. Housten et al. (2020) found that animation is not always superior for all types of messages; therefore, its effectiveness depends greatly on content design and user characteristics. Accordingly, further research is needed to test the impact of the media using pre-test and post-test designs or quasi-experimental approaches. Compared with general educational media, the video developed in this study has practical value for family health promotion because it specifically integrates the topic of traditional medicinal plants, simple language, and a local context closely related to everyday community life. Its scientific contribution lies in the application of the 4D model to the development of animation-based health education media on family medicinal plants, supported by validation data and initial user responses.

This study has several limitations. First, the disseminate stage was carried out only on a limited basis; therefore, the generalizability of the findings remains low. Second, the instruments were not tested for construct validity and statistical reliability because the study focused on the initial development of the product. Third, no measurement of short-term or long-term effects on knowledge or behavior related to

the use of family medicinal plants was conducted. These limitations should be considered in the future use and further development of this media.

Overall, animation-based educational video media can significantly increase public awareness of the benefits of traditional herbal remedies for family health by making information more accessible and engaging. These videos can effectively communicate the preparation and use of herbal medicine, such as *jamu*, which has been shown to enhance immunity and improve health during crises such as the COVID-19 pandemic (Kusumo et al., 2020).

CONCLUSION

This study developed an animated video-based educational medium on the use of traditional medicinal plants for family health. The product achieved a material validity score of 93% and a media validity score of 91%, both of which fall within the very valid category. In the limited user response test, the medium obtained a score of 81.11%, indicating positive user acceptance. Therefore, the developed animated video is considered feasible for use as a supporting educational medium in family health promotion. The contribution of this study lies in the development of an animation-based health education medium that integrates multimedia principles, precautionary use messages, and a family-centered context. However, the conclusions of this study are limited to product feasibility and initial user responses. Thus, the effectiveness of the medium in improving knowledge and promoting behavioral change still needs to be examined in future studies.

RECOMMENDATION

Future studies are recommended to: (1) evaluate the effectiveness of the medium using a larger sample through a pre-test and post-test design; (2) conduct construct validity and instrument reliability testing at the field trial stage; (3) assess the long-term impact of the medium on changes in knowledge, attitudes, and behaviors related to the use of family medicinal plants; and (4) develop additional interactive features, such as short quizzes or links to further information sources, to enhance user engagement.

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REFERENCES

Aisah, S. H., Ismail, S., & Margawati, A. (2021). Edukasi Kesehatan Dengan Media Video Animasi: Scoping Review. *Jurnal Perawat Indonesia*, *5*(1). https://doi.org/10.32584/jpi.v5i1.926

Arciniegas Martinez, A. T. (2019, July 3). Yerberito: Audiovisual Transmedia Para Difundir El Uso sostenible De Plantas Medicinales. *Libro de Actas - IV Congreso Internacional de Investigación En Artes Visuales. ANIAV 2019. Imagen [N] Visible*. https://doi.org/10.4995/ANIAV.2019.9050

Brito, D. de S. F., Oliveira, P. C. de, Ramalho, I. N., Ferreira, M. A. S. G., Santos, M. I. dos, Rios, A. C. C., Silva, R. R. C. de C. e, Mayrink, M. C. S., Mendes, R. C., Soares, A. L., Silva, P. C. V. da, Queiroz, D. I. B. de, Torres, L. G., Alves, K. F. L., Golfetto, J. G., & Silva, E. N. da. (2024). Plantas Medicinais: Caminhos Naturais Para A Saúde E A Cura. *Revista Ft*, *29*(141), 15–16. https://doi.org/10.69849/revistaft/ra10202412061015

Chitra, V. (2022). Folk Medicine and Practical Life. *International Research Journal of*

Tamil, *4*(S-12), 44–47. https://doi.org/10.34256/irjt224s127

Clark, J. M., & Paivio, A. (1991). Dual coding theory and education. *Educational Psychology Review*, *3*(3). https://doi.org/https://doi.org/10.1007/BF01320076

Filley, R. D. (1982). Opening the door to communication through graphics. *IEEE Transactions on Professional Communication*, *PC-25*(2), 91–94. https://doi.org/10.1109/TPC.1982.6447761

Hamzari. (2008). Identifikasi Tanaman Obat-Obatan Yang Dimanfaatkan Oleh Masyarakat Sekitar Hutan Tabo-Tabo. *Pertanian*, *3*, 159–167.

Hansen, S., et al. (2024). The Effectiveness of Video Animations as a Tool to Improve Health Information Recall for Patients: Systematic Review. *Journal of Medical Internet Research*. https://doi.org/https://doi.org/10.2196/58306

Hasbullah, H., Sumadewa, I. N. Y., & Satria, C. (2024). Strategi Komunikasi Visual Dalam Animasi Iklan Sasa Tepung Bumbu. *Widya Duta: Jurnal Ilmiah Ilmu Sosial Budaya*, *19*(2), 114–128. https://doi.org/10.25078/wd.v19i2.4053

Hidayat, R., Setiawan, D., & Maulana, A. (2021). Pengaruh media pembelajaran berbasis animasi terhadap pemahaman siswa. *Jurnal Pendidikan Multimedia*, *9*(2), 45-53.

Housten, A. J., Kamath, G. R., Bevers, T. B., Cantor, S. B., Dixon, N., Hite, A., Kallen, M. A., Leal, V. B., Li, L., & Volk, R. J. (2020). Does animation improve comprehension of risk information in patients with low health literacy? A randomized trial. *Medical Decision Making*, *40*(1), 17–28. https://doi.org/https://doi.org/10.1177/0272989X19890296

Jha, S. K., Chauhan, S., & Lal, G. (2024). Medicinal Properties of Plants Used in Traditional Medicinal Systems. In *Futuristic Trends in Herbal Medicines and Food Products* (pp. 13–56). Iterative International Publishers, Selfypage Developers Pvt Ltd. https://doi.org/10.58532/nbennurch242

Kusumo, A. R., Wiyoga, F. Y., Perdana, H. P., Khairunnisa, I., Suhandi, R. I., & Prastika, S. S. (2020). Jamu Tradisional Indonesia: Tingkatkan Imunitas Tubuh Secara Alami Selama Pandemi. *Jurnal Layanan Masyarakat (Journal of Public Services)*, *4*(2), 465. https://doi.org/10.20473/jlm.v4i2.2020.465-471

Mahajan, R., Gupta, K., Gupta, P., Kukreja, S., & Singh, T. (2020). Multimedia instructional design principles: Moving from theoretical rationale to practical applications. *Indian Pediatrics*, *57*, 555-560. https://doi.org/https://doi.org/10.1007/s13312-020-1854-2

Mayer, R. E. (2022). *Cognitive theory of multimedia learning. In R. E. Mayer & L. Fiorella (Eds.), The Cambridge handbook of multimedia learning (3rd ed., pp. 57-72).* Cambridge University Press. https://doi.org/https://doi.org/10.1017/9781108894333.008

Mendieta, M. da C., Souza, A. D. Z. de, Vargas, N. R. C., Piriz, M. A., Echevarría-Guanilo, M. E., & Heck, R. M. (2014). *Transmissão de conhecimento sobre plantas medicinais no contexto familiar: revisão integrativa. 8*(10), 3516–3524.

Nugraha, A., Putri, R., & Kurniawan, D. (2020). Efektivitas media video animasi dalam pembelajaran kesehatan. *Jurnal Teknologi Pendidikan*, *15*(1), 22–29.

Rahayu, S., Lestari, D., & Andini, P. (2020). Keanekaragaman hayati tumbuhan obat di Indonesia. *Jurnal Biologi Tropis*, *18*(4), 56-63.

Sari, A., & Wahyuni, T. (2019). Tumbuhan obat tradisional: Alternatif pengobatan alami di Indonesia. *Jurnal Farmasi Dan Kesehatan*, *12*(2), 34–41.

Setiawan, M., Wardah, Oryzanti, P., & Kuncari, E. S. (2023). Ethnobotany of plant species diversity in Moti Island, North Maluku Province, Indonesia. *Buletin Kebun Raya*, *26*(1), 11–17. https://doi.org/doi.org/10.55981/bkr.2023.738

Susiarti, S. (2015a). Pengetahuan dan Pemanfaatan Tumbuhan Obat Masyarakat Lokal di Pulau Seram, Maluku. *Journal of Biological Diversity*, *1*, 1083–1087.

Susiarti, S. (2015b). *Pengetahuan dan Pemanfaatan Tumbuhan Obat Masyarakat Lokal Di Pulau Seram, Maluku Bidang Botani*. Pusat Penelitian Biologi, Lembaga Ilmu Pengetahuan Indonesia .Bogor.

Tang, T., Tang, J., Hong, J., Yu, L., Ren, P., & Wu, Y. (2020). Design guidelines for augmenting short-form videos using animated data visualizations. *Journal of Visualization*, *23*(4), 707–720. https://doi.org/10.1007/s12650-020-00644-z

Theresiana, Y., Kamaluddin, K., Sriati, S., & Erina, L. (2018). Factors of medicinal plants users as alternative medicinal in Indonesia. *Science and Technology Indonesia*, *3*(2), 94–99. https://doi.org/10.26554/sti.2018.3.2.94-99

Utami, N., Lestari, A., & Nugroho, S. (2022). Pengembangan media edukasi berbasis video animasi. *Jurnal Pendidikan Inovatif, 8*(1), 15–27.