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Ethnopharmacognostic Knowledge of the Rambang Community in Pantar Village: Development of a Biodiversity E-Booklet

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ABSTRACT

Local medicinal-plant knowledge is a biocultural resource and a potential contextual source for biodiversity education, yet orally transmitted knowledge is vulnerable to erosion. This study aimed to (1) document medicinal plants used by the Rambang community in Pantar Village, including plant diversity, parts used, preparation methods, and community-reported uses, and (2) develop and evaluate a biodiversity E-Booklet based on the documented ethnopharmacognostic knowledge. The study combined descriptive qualitative inquiry with research and development. Fifteen respondents with knowledge and experience in medicinal-plant use were selected purposively, and data were collected through structured interviews, field exploration, documentation, plant identification, and classification. The E-Booklet was developed through the analysis, design, and development stages of ADDIE, followed by external expert validation and a limited student implementation focused on readability and usability. The study documented 40 medicinal plant species belonging to 26 families; Zingiberaceae was the most represented family with seven species, followed by Asteraceae with five species. Leaves were the most frequently reported plant part, and boiling/decoction was the most frequently reported preparation method. External validation yielded 92.50% for content and biology education and 91.67% for learning media, with a mean of 92.09%, indicating high feasibility. The student readability and usability assessment involving 30 Grade X students yielded an overall mean item score of 3.80 on a four-point scale (95.00%), indicating that the E-Booklet was highly readable and usable. Student feedback indicated that local-language terms required clearer explanation and that image quality could be improved. The findings demonstrate a practical pathway for transforming ethnopharmacognostic knowledge into contextual biodiversity learning material while maintaining a clear distinction between community-reported medicinal uses and clinically verified efficacy. The limited student trial assessed readability and usability rather than learning effectiveness.

A. INTRODUCTION

Indonesia is one of the world's major centers of biological and cultural diversity. Across the archipelago, local communities have developed detailed knowledge of plants used for health, food, ritual, and daily needs. Ethnobotanical and ethnopharmacological research shows that documenting medicinal plants is important not only for identifying locally valued species but also for recording preparation practices, use patterns, and cultural knowledge that may otherwise remain undocumented (Cordero et al., 2022; Dapar et al., 2020; Faruque et al., 2018; Jadid et al., 2020). This biocultural perspective is

particularly relevant in eastern Indonesia, where locally transmitted plant knowledge remains closely connected to household health practices and surrounding biodiversity.

Ethnopharmacognostic inquiry focuses on how a community recognizes, selects, prepares, and uses natural materials as traditional remedies. Comparable studies in different cultural settings demonstrate that medicinal-plant knowledge is structured by local ecology, cultural experience, accessibility, and perceived therapeutic value (Belhouala & Benarba, 2021; Cheng et al., 2022; Emre et al., 2021; Huang et al., 2022) . Such documentation is valuable as a record of community knowledge, but reported medicinal uses must be distinguished from clinical evidence of safety or efficacy. Ethnopharmacognostic findings therefore provide hypotheses and cultural documentation rather than direct proof that a preparation can clinically treat a disease.

The preservation of traditional knowledge is increasingly important because knowledge transmitted mainly through oral practice can change or decline under urbanization, shifting lifestyles, changing access to health services, and reduced intergenerational transmission. Studies across different communities have shown that social and environmental change can reshape the recognition and use of medicinal plants (Agize et al., 2022; Arjona-García et al., 2021; Eshete & Molla, 2021; Kassa et al., 2020). In the Indonesian context, medicinal-plant knowledge has also been documented among the Tengger community and other local groups, while a study in Manggarai Barat reported substantial diversity in plants used traditionally by Manggarai communities (Jadid et al., 2020; Jamun et al., 2020). However, specific documentation of the Rambang community in Pantar Village and its use as a structured learning resource remains limited.

Biodiversity education can benefit from such local evidence because students encounter concrete examples of species diversity, plant morphology, classification, human–environment relationships, conservation, and local wisdom. Digital learning media can organize this information through concise text and visual representations, but the educational value of a digital medium depends on how information is selected, structured, and connected to learning tasks. Research on technology-supported science learning shows that visually rich media can support engagement and learning, while poorly designed digital environments may increase cognitive load without improving conceptual understanding (Makransky et al., 2019; Parong & Mayer, 2018, 2021). E-book research likewise indicates that digital materials can support science learning when content, activities, and presentation are pedagogically aligned (Susanto et al., 2022). For biodiversity specifically, digital-booklet development has been reported as a feasible approach for organizing visual and contextual learning content (Prameswati & Saifuddin, 2022).

Although medicinal-plant knowledge has been widely documented, a recurring limitation is that many studies primarily report inventories of species, plant parts used, preparation methods, and traditional therapeutic uses. Such documentation is essential for preserving biocultural knowledge, but inventory-oriented reporting alone does not fully translate local knowledge into structured learning experiences. The research problem is therefore twofold: orally transmitted knowledge remains vulnerable to erosion, while its educational potential for connecting local biodiversity with formal biology learning is still underused.

This gap is important for biodiversity learning because locally familiar organisms can connect abstract concepts of species diversity, classification, plant organs, human-environment relationships, conservation, and sustainable use with learners' lived environments. Existing research on digital learning media indicates that educational value depends not merely on visual attractiveness, but on the alignment of content,

presentation, cognitive demand, and learning purposes. A biodiversity E-Booklet based on local evidence should therefore reorganize ethnopharmacognostic information into concise, accurate, visually accessible, and pedagogically meaningful content rather than simply reproducing an ethnobotanical list.

Taken together, previous studies have documented medicinal plants in different communities, including Manggarai contexts, while digital-booklet studies have demonstrated the feasibility of technology-supported biodiversity materials. However, much of the ethnobotanical literature stops at biological inventory and traditional-use description, and evidence remains limited on the systematic transformation of ethnopharmacognostic knowledge specific to the Rambang community in Pantar Village into a contextual biodiversity learning resource. The novelty of this study lies in integrating place-specific ethnopharmacognostic documentation with the development and formative evaluation of a biodiversity E-Booklet, while explicitly distinguishing community-reported medicinal uses from clinically verified efficacy.

Based on this research gap, this study aimed to achieve two connected objectives: (1) to document the medicinal plants used by the Rambang community in Pantar Village, including plant diversity, reported plant parts, preparation methods, and community-reported uses; and (2) to transform the documented ethnopharmacognostic information into a biodiversity E-Booklet and evaluate its feasibility through external expert validation and a limited student readability and usability trial. By linking community-based documentation with educational product development and formative evaluation, the study seeks to preserve local biocultural knowledge and provide a contextual resource for biodiversity learning without equating traditional use reports with clinical efficacy.

B. METHODS

1. Research Design and Setting

This study used a descriptive qualitative approach combined with research and development. The qualitative component documented ethnopharmacognostic knowledge of the Rambang community, while the development component transformed the documented information into a biodiversity E-Booklet. The study was conducted in March 2026 in Pantar Village, Komodo District, West Manggarai Regency, East Nusa Tenggara, Indonesia.

2. Participants and Data Collection

The study involved 15 respondents selected purposively based on their knowledge and experience in using medicinal plants, including traditional medicine providers and community users. Data were collected through structured interviews, field exploration, documentation, plant identification, and classification. Interview topics covered local plant names, parts used, preparation methods, routes or modes of use, community-reported health indications, and plant sources. Field exploration with respondents was used to observe and document the plants referred to during interviews. The analysis treats all therapeutic indications as reported local knowledge rather than verified clinical claims.

3. E-Booklet Development

The E-Booklet development followed the ADDIE framework. The analysis stage organized the ethnopharmacognostic findings and identified their relevance to biodiversity learning. The design stage established the E-Booklet structure, sequence, visual layout, and information fields. The development stage produced the digital learning medium containing local and scientific plant names, photographs or illustrations, plant

families, parts used, community-reported uses, preparation methods, and concise contextual explanations linked to biodiversity concepts. Following development, formative evaluation consisted of external expert validation and a limited student implementation focused on readability and usability. This limited implementation did not constitute a controlled classroom-effectiveness test.

4. External Expert Validation, Limited Student Implementation, and Data Analysis

The developed E-Booklet was externally validated by two independent experts from Universitas Nusa Cendana: one expert in biology education/content and one expert in learning media. The material-validation instrument consisted of 20 items covering scientific accuracy, ethnopharmacognosy and ethical boundaries of medicinal claims, relevance to biodiversity learning, contextuality and local wisdom, and language/presentation. The media-validation instrument consisted of 18 items covering layout and consistency, typography and readability, visual documentation, navigation and organization, and usability/accessibility. Both instruments used a four-point rating scale. After expert validation, a limited implementation involved 30 Grade X students. Students were instructed to read and use the E-Booklet before completing a 15-item readability and usability questionnaire on a four-point scale covering language readability, content clarity, visual quality, usability, and interest/contextual relevance. Open-ended questions were also used to obtain student suggestions. Percentage scores were calculated for the expert-validation results by dividing the obtained score by the maximum possible score and multiplying by 100. Student responses were summarized primarily using mean item scores on the four-point scale, while the overall percentage was used as a descriptive summary of readability and usability. Open-ended comments were analyzed descriptively. No inferential analysis of learning effectiveness was performed because the limited implementation did not include pretest-posttest learning-outcome measurement.

C. RESULT AND DISCUSSION

1. Medicinal Plant Diversity and Community-Reported Uses

The 15 respondents consisted of four males and eleven females. Interviews, field exploration, and documentation identified 40 medicinal plant species belonging to 26 families. Zingiberaceae was the most represented family with seven species, followed by Asteraceae with five species. The remaining families were represented by one or two species. The breadth of taxa indicates that medicinal-plant knowledge among the Rambang community is distributed across cultivated, household, and locally available species rather than concentrated in a single botanical group.

Table 1. Medicinal Plant Species Used by the Rambang Community in Pantar Village

No.	Indonesian name	Local name	Scientific name	Family
1	Salam	Saung Salam	*Syzygium polyanthum*	Myrtaceae
2	Temulawak	Tewoa deres	*Curcuma xanthorrhiza Roxb.*	Zingiberaceae
3	Temu hitam	Tewoa miteng	*Curcuma aeruginosa Roxb.*	Zingiberaceae
4	Temu putih	Tewoa bakok	*Curcuma zedoaria (Christm.) Roscoe.*	Zingiberaceae
5	Kunyit	Wunis	*Curcuma longa L.*	Zingiberaceae

No.	Indonesian name	Local name	Scientific name	Family
6	Kencur	Jengkur	*Kaempferia galanga L.*	Zingiberaceae
7	Jahe	Lia	*Zingiber officinale Roscoe*	Zingiberaceae
8	Jahe merah	Lia dereng	*Zingiber officinale var. rubrum*	Zingiberaceae
9	Jambu biji	Jambu wini	*Psidium guajava L.*	Myrtaceae
10	Sambiloto	Sambiroto	*Andrographis paniculata (Burm f.)*	Acanthaceae
11	Binahong	Binahong	*Anredera cordifolia (Ten.) Steenis*	Basellaceae
12	Sintrong	Saung bendes	*Crassocephalum crepidioides (Benth) S.Moore*	Asteraceae
13	Kelapa	Nio	*Cocos nucifera L.*	Arecaceae
14	Pecut kuda	Saung merdeka	*Stachytarpheta jamaicensis (L.) Vahl*	Verbenaceae
15	Sawi langit	Saung mene	*Cyanthillium cinereum (L.) H.Rob.*	Asteraceae
16	Sereh	Mbisu	*Cymbopogon citratus (DC.) Stapf*	Poaceae
17	Sirsak	Keroso	*Annona muricata L.*	Annonaceae
18	Sirih	Saung mingi	*Piper betle L.*	Piperaceae
19	Kumis kucing	Kumis kucing	*Orthosiphon aristatus (Blume) Miq.*	Lamiaceae
20	Alang-alang	Wake ri'i	*Imperata cylindrica (L.) Raeusch.*	Poaceae
21	Kejibeling	Kecingbeling	*Strobilanthes crispa (L.) Blume*	Acanthaceae
22	Jeruk nipis	Ndiru deta	*Citrus aurantiifolia (Christm.) Swingle*	Rutaceae
23	Bawang putih	Suna bakok	*Allium sativum L.*	Amaryllidaceae
24	Ketumbar	Ketumbar	*Coriandrum sativum L.*	Apiaceae
25	Pandan	Saung pandan	*Pandanus amaryllifolius Roxb.*	Pandanaceae
26	Kersen	Saung kersen	*Muntingia calabura L.*	Muntingiaceae
27	Alpukat	Alvokat	*Persea americana Mill.*	Lauraceae
28	Pisang kepok	Muku wini	*Musa acuminata balbisiana Colla*	Musaceae
29	Papaya	Kaung	*Carica papaya L.*	Caricaceae
30	Lidah buaya	Lidah buaya	*Aloe vera (L.) Burm.f.*	Asphodelaceae
31	Jarak pagar	Pandut	*Jatropha curcas L.*	Euphorbiaceae
32	Tapak liman	Saung usus	*Elephantopus scaber L.*	Asteraceae
33	Sukun	Kerara	*Artocarpus altilis (Parkinson) Fosberg*	Moraceae

No.	Indonesian name	Local name	Scientific name	Family
34	Daun afrika	Saung klorofil	*Vernonia amygdalina*	Asteraceae
35	Kirinyuh	Saung cincus	*Chromolaena odorata (L.) R.M.King & H.Rob.*	Asteraceae
36	Meniran merah	Cinta wua dereng	*Phyllanthus urinaria L.*	Phyllanthaceae
37	Cocor bebek	Cocor bebek	*Kalanchoe pinnata (Lam.) Pers.*	Crassulaceae
38	Patikan kebo	Nununaeng	*Euphorbia hirta L.*	Euphorbiaceae
39	Sidaguri	Saung menengis	*Sida rhombifolia L.*	Malvaceae
40	Nenas	Saung pandang	*Ananas comosus (L.) Merr.*	Bromeliaceae

Respondents associated the documented plants with a wide range of health conditions, including digestive complaints, wounds, cough, fever, menstrual discomfort, post-partum recovery, diabetes, urinary and kidney complaints, hypertension, and other household health needs. These are community-reported indications and should be interpreted as ethnomedicinal documentation, not as confirmation of pharmacological efficacy. Similar ethnobotanical studies show that indigenous and local communities often maintain broad medicinal repertoires covering multiple ailment categories (Hosseini et al., 2021; Laldingliani et al., 2022; Ralte & Singh, 2024; Tadesse et al., 2024).

2. Plant Parts and Preparation Methods

Analysis of the ethnopharmacognostic data showed clear variation in both the plant parts utilized and the methods used by the Rambang community to prepare traditional remedies. Leaves were the most frequently reported plant part, followed by rhizomes and roots, whereas stems, fruits, bulbs, and seeds were reported less frequently. Preparation practices were also diverse, with boiling or decoction reported most often, alongside infusion, grating, squeezing, slicing, pounding, heating, cooking, and topical application. A summary of these patterns is presented in Table 2.

Table 2. Summary of Plant Parts and Preparation Methods

Aspect	Category	Use intensity	Description
Plant part	Leaves	Most dominant	Used for cholesterol, wounds, fever, diabetes, digestive disorders, reproductive health, and post-partum recovery
Plant part	Rhizomes	High	Used mainly from Zingiberaceae species such as turmeric, ginger, temulawak, temu hitam, temu putih, and kencur
Plant part	Roots	Moderate	Used for several internal and post-partum complaints
Plant part	Stems	Low-moderate	Used in selected remedies and mixtures
Plant part	Fruits	Low-moderate	Used for digestive complaints and health maintenance

Aspect	Category	Use intensity	Description
Plant part	Bulbs	Low	Used in combination remedies such as garlic-based preparations
Plant part	Seeds	Low	Used in mixed preparations such as coriander
Processing/use method	Boiling/decoction	Frequently used	Plant materials are boiled and the liquid is consumed
Processing/use method	Brewing/infusion	Used in several remedies	Plant materials are brewed with warm or hot water
Processing/use method	Grating and squeezing	Used in rhizome remedies	Rhizomes are grated and the extract is consumed or applied
Processing/use method	Slicing/cutting	Frequently used as preparation	Materials are sliced before boiling, eating, or mixing
Processing/use method	Pounding	Used in topical remedies	Plant parts are pounded and applied to affected areas
Processing/use method	Burning/heating	Limited use	Selected leaves are heated before topical application
Processing/use method	Cooking	Used in several preparations	Plant material is cooked alone or with coconut oil
Processing/use method	Topical application	Used for wounds, swelling, and boils	Materials are applied, rubbed, or attached to the affected body part

Leaves were the most frequently reported plant part, followed by rhizomes and roots. This pattern is consistent with many ethnobotanical surveys in which leaves are commonly selected because they are accessible, renewable, and easily prepared, although harvesting practices still require conservation awareness (Belhouala & Benarba, 2021; Pala et al., 2019; Tadesse et al., 2024). The prominence of rhizomes in the present study is linked to the strong representation of Zingiberaceae, including ginger, turmeric, temulawak, kencur, and related taxa. The importance of locally available plant parts and household-accessible species has also been reported across different ethnomedicinal systems (Cheng et al., 2022; Huang et al., 2022; Phumthum et al., 2021).

Boiling or decoction was the most frequently reported preparation method, alongside infusion, slicing, grating, squeezing, pounding, heating, cooking, and topical application. Comparable studies show that decoction and infusion are among the most common ways communities process medicinal plants because they are practical, familiar, and suitable for a wide range of plant materials (Belhouala & Benarba, 2021; Emre et al., 2021; Živković et al., 2020). Variation in preparation also reflects local knowledge about the part used, intended route of administration, availability of tools, and cultural practice. Such practices should be documented carefully because preparation method is part of ethnopharmacognostic knowledge, even when dosage and clinical safety have not been experimentally established.

3. Development, External Validation, and Student Readability of the Biodiversity E-Booklet

The documented ethnopharmacognostic information was organized into a biodiversity E-Booklet. The product presents plant identity, local and scientific names, plant family, visual documentation, parts used, community-reported medicinal uses,

preparation methods, and concise connections to biodiversity topics. This design enables local medicinal-plant data to function not only as a cultural record but also as a contextual example of species diversity, classification, useful plant organs, and conservation.

Table 3. External Expert Validation of the Biodiversity E-Booklet

Validation aspect	External expert	Score	Percentage	Interpretation
Content and biology education	Biology education expert	74/80	92.50%	Highly feasible
Learning media	Learning media expert	66/72	91.67%	Highly feasible
Mean	Two external experts	—	92.09%	Highly feasible

External expert validation indicated strong feasibility of the developed E-Booklet. The biology-education/content expert awarded 74 of 80 points (92.50%), while the learning-media expert awarded 66 of 72 points (91.67%). The arithmetic mean of the two validation percentages was 92.09%, placing the product in the highly feasible category. By aspect, the material validation was strongest for contextuality and local-wisdom integration (100.00%), while ethnopharmacognosy and the ethical boundaries of medicinal claims received 81.25%. In the media validation, layout/consistency and visual documentation each reached 93.75%, while typography/readability received 87.50%. Both external experts concluded that the E-Booklet could be used without revision.

The limited student implementation involved 30 Grade X students. The readability and usability questionnaire yielded an overall mean item score of 3.80 on a four-point scale, equivalent to 95.00%. The highest mean item scores were observed for language readability, visual quality, and usability (4.00 each), while content clarity and interest/contextual relevance showed comparatively lower mean scores (3.50 each). These results indicate that the E-Booklet was highly readable and usable for the target students.

Table 4. Student Readability and Usability Test of the E-Booklet

Aspect	Items	Mean item score
Language readability	1–3	4.00
Content clarity	4–7	3.50
Visual quality	8–10	4.00
Usability	11–13	4.00
Interest and contextual relevance	14–15	3.50
Overall	**1–15**	**3.80**

Open-ended student feedback provided specific directions for refinement. Students reported that the E-Booklet content was generally easy to understand, while local-language terms were identified as a source of difficulty and improved image quality was suggested. These comments support the addition of clearer explanations or a glossary for local terms and continued optimization of plant images.

4. Discussion

The documentation of 40 species from 26 families confirms that the Rambang community retains substantial knowledge of medicinal plants. The result is comparable with ethnomedicinal studies in Indonesia and other biodiverse regions where community health practices draw on a wide taxonomic range of plants and where knowledge is linked to species availability, cultural familiarity, and local ecosystems (Cordero et al., 2022; Dapar et al., 2020; Faruque et al., 2018; Jadid et al., 2020). The finding also complements

evidence from Manggarai Barat that traditional medicinal-plant knowledge remains an important component of local biodiversity use (Jamun et al., 2020).

The dominance of Zingiberaceae and Asteraceae is ecologically and culturally plausible because many members of these families are cultivated or readily encountered and have long histories of household use. Studies from diverse settings similarly report strong representation of a limited number of highly familiar medicinal-plant families, although the dominant families vary according to local flora and cultural practice (Agize et al., 2022; Eshete & Molla, 2021; Kassa et al., 2020). This variation reinforces the importance of place-specific documentation rather than assuming that medicinal-plant knowledge is uniform across communities.

The preference for leaves and the frequent use of decoction also align with broader ethnobotanical patterns (Belhouala & Benarba, 2021; Emre et al., 2021; Tadesse et al., 2024; Živković et al., 2020). From a conservation perspective, leaf harvesting can be less destructive than repeated removal of roots or whole plants, although sustainability depends on harvesting intensity, species biology, and local abundance. Home-garden and community-based documentation can therefore support both cultural preservation and awareness of sustainable plant use (Pala et al., 2019).

An important interpretive boundary is that ethnopharmacognostic documentation records what people report using; it does not demonstrate that a plant is clinically safe or effective for the reported condition. This distinction is essential because traditional practices may guide future phytochemical, pharmacological, toxicological, or clinical research but should not be presented as medical proof. International ethnopharmacological studies similarly frame community reports as sources of traditional knowledge and candidates for further scientific investigation (Cheng et al., 2022; Hosseini et al., 2021; Huang et al., 2022; Phumthum et al., 2021).

Transforming the findings into an E-Booklet adds an educational dimension to the documentation. Digital media can make local biodiversity examples more visible and accessible, but educational quality depends on the alignment of visual presentation, content accuracy, cognitive demand, and learning purpose. Experimental work in science multimedia learning shows that attractive or immersive presentation alone does not guarantee deeper understanding and may increase extraneous cognitive processing when design is not carefully managed (Makransky et al., 2019; Parong & Mayer, 2018, 2021). Conversely, structured e-books can support science learning when digital features are connected to clear learning goals and activities (Susanto et al., 2022). In biodiversity education, digital-booklet development has also demonstrated potential as a feasible visual learning resource (Prameswati & Saifuddin, 2022).

The external validation results strengthen the evidence that the E-Booklet is appropriate as a contextual biodiversity learning resource. The content and biology-education validation score of 92.50% and the learning-media score of 91.67% indicate that both disciplinary accuracy and media design were judged favorably by independent experts. At the same time, the comparatively lower material score for ethnopharmacognosy and ethical claim boundaries (81.25%) reinforces the importance of consistently presenting medicinal uses as community-reported knowledge rather than clinical evidence. The lower relative score for typography and readability in the media validation (87.50%) also identifies a practical area for continued refinement despite the overall highly feasible judgment.

The student readability and usability result further indicates that the E-Booklet was understandable and easy to use in a limited Grade X implementation. The highest mean item scores were found for language readability, visual quality, and usability (4.00),

whereas content clarity and interest/contextual relevance obtained comparatively lower mean scores (3.50). Open-ended responses specifically pointed to local-language terminology and image quality as areas for improvement. These findings support targeted refinement through clearer explanations or a glossary of local terms and higher-quality plant visuals. However, the student trial should be interpreted as evidence of readability and usability only; it does not demonstrate improvement in biodiversity knowledge or other learning outcomes.

This study has several limitations. First, the ethnopharmacognostic component involved 15 purposively selected respondents in one village, so the findings represent context-specific knowledge and should not be generalized to all Rambang or Manggarai communities. Second, botanical identification relied on field documentation and reference matching; future studies should strengthen taxonomic verification through herbarium vouchers or specialist confirmation. Third, external validation involved two experts, and the student implementation was limited to readability and usability testing with 30 Grade X students. Although these stages strengthen formative product evaluation, they do not establish learning effectiveness. Future research should involve broader external validation where appropriate, refine local-term explanations and image quality, conduct classroom implementation with pretest-posttest or comparison designs, and evaluate effects on biodiversity understanding, scientific literacy, local-wisdom appreciation, and conservation attitudes.

D. CONCLUSION AND SUGGESTIONS

The Rambang community in Pantar Village was documented as using 40 medicinal plant species from 26 families, with Zingiberaceae and Asteraceae most represented. Leaves and rhizomes were prominent plant parts, while boiling, infusion, slicing, grating, squeezing, pounding, heating, cooking, and topical application were among the reported preparation and use methods. The reported therapeutic indications represent local ethnomedicinal knowledge and should not be interpreted as clinical evidence of efficacy. The documented information was transformed into a contextual biodiversity E-Booklet. External validation yielded 92.50% for content and biology education and 91.67% for learning media, with a mean of 92.09%, indicating high feasibility. A limited implementation with 30 Grade X students yielded an overall readability and usability mean item score of 3.80 on a four-point scale (95.00%). Student feedback identified local-language terminology and image quality as areas for further refinement. Thus, the E-Booklet shows strong formative feasibility and usability as a contextual biodiversity learning resource, although its effect on learning outcomes remains to be tested through broader classroom implementation and effectiveness evaluation.

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