

Education on Herbal Antibacterial Properties of Moringa and Moringa Tea Training

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ABSTRACT

Bacterial infections and drug resistance constitute significant health issues in Indonesia. The general lack of awareness regarding the proper use of antibiotics is one of the main causes. Therefore, the Community Service team from the Health Analyst Study Program conducted an activity titled "Education and Dissemination of Moringa Research Results as a Herbal Antibacterial and Training on Making Moringa Tea for Villagers." This activity aims to increase public knowledge and skills about the prevention and treatment of bacterial diseases using moringa herbal medicine. The methods employed for this activity include seminars and training sessions. The seminar discussed the potential of moringa extract as an antibacterial based on the results of the team's research and its wise application. The training discusses how to make moringa tea and its benefits as an alternative treatment. Educational brochures were also distributed to the participants of the activity. The results of the activity indicated that there was an increase in public understanding of moringa as an herbal antibiotic and the wise use of antibiotics, as well as an increase in people's skills in making moringa tea. This activity is expected to have a positive impact on the health of the village community. In addition, this activity is also in line with the concept and supports the achievement of IKU (the main performance indicator of higher education) by providing an off-campus learning experience for students and involving lecturers in community service activities.

Keywords: Antibacterial Herbal; Education; Moringa; Moringa Tea

INTRODUCTION

Bacterial diseases and antibiotic resistance are increasingly worrying health problems due to the lack of public understanding of the correct use of antibiotics. There are reports of cases

Received: 2023-08-10 Revised: 2023-09-27 Accepted: 2023-11-15 Published: 2024-01-22

of infectious diseases such as tuberculosis and diarrhea that still haunt residents, causing death and disrupting public health. also faces similar challenges. In this context, the main problem faced is the lack of knowledge and understanding of the village community about the treatment of bacterial diseases using herbal medicines, especially moringa leaves. In addition, the lack of understanding of how to process and utilize moringa leaves as a health tea is also a concern. Therefore, community service activities are needed to increase awareness of the potential of moringa as an herbal antibiotic and moringa tea as a health drink (SAZON, 2022).

Several similar community service services have also been carried out by lecturers. describes a program by the university that educates the public about medicinal plants that can increase immunity and prevent Covid-19 through webinars and planting medicinal gardens in the yard. Explains the program by the village, which teaches the community how to use herbal products such as biofilters and spray hand sanitizers to improve water quality and hygiene. describes a program that informs the public about the benefits of herbal plants such as Chinese betel leaves, ginger, and cinnamon bark to treat hypertension, diabetes, and colds. These programs demonstrate how universities can contribute to public health by harnessing the local potential of herbal resources. explained the program by 70 students who conducted a survey on the use of medicinal plants in the village and provided education and demonstrations on the manufacture of herbal preparations and the distillation of essential oils (Miller et al., 2017).

Explaining a program by an elderly companion group that introduces the potential of moringa seeds as an ingredient in herbal toothpaste for dental and oral health through online media. explained a program, which utilizes spices such as ginger, temulawak, turmeric, and serei to increase the body's immunity in the face of the Covid-19 pandemic. These programs demonstrate how universities can contribute to public health by harnessing the local potential of herbal resources. Education and Dissemination of Moringa Research Results as a Herbal Antibacterial and Moringa Tea Making Training for Villagers aims to increase public knowledge about the treatment of bacterial diseases using moringa leaf-based herbal medicines. In addition, this activity aims to provide a proper understanding of the making of moringa tea as an alternative to medicine and health drinks. Literature reviews show that moringa extract contains antibacterial compounds, such as flavonoids, polyphenols, and alkaloids, that can help treat bacterial infections. Research has also shown that moringa leaf extract has antibacterial activity against *Staphylococcus aureus* bacteria. In addition, moringa tea has been shown to increase immunity and reduce the risk of developing chronic diseases such as diabetes, hypertension, and high cholesterol.

Received: 2023-08-10 Revised: 2023-09-27 Accepted: 2023-11-15 Published: 2024-01-22

RESEARCH ELABORATIONS

The Community Service Team carried out community service activities with a set goal, namely to improve the knowledge and skills of the Angin Village community about the treatment of bacterial diseases using herbal medicines based on moringa leaves. We measured the results of this activity using a measuring tool that incorporated both description and qualitative analysis. The achievement of the success of service activities is assessed from changes in attitudes, socio-culture, and economics of the target community. This service activity consists of two solutions, namely: 1. Education and Dissemination of Research Results on Moringa as an Herbal Antibacterial: A seminar or workshop was held, which was attended by 50 villagers, including community leaders, health cadres, and mothers. The seminar or workshop discussed the potential of moringa extract as a potential antibacterial [8] to overcome infectious diseases such as tuberculosis and diarrhea, as well as how to use it wisely so as not to cause antibiotic resistance. Brochures and guidebooks were created containing information about moringa as an herbal antibiotic and the wise use of antibiotics, as well as how to process moringa leaves into health tea. Brochures and guidebooks were distributed to seminar or workshop participants and also distributed to the homes of villagers. Output Target: Increase public knowledge about moringa as an alternative treatment for bacterial infections. Increase public knowledge in using medicinal plants as an alternative to antibiotics and use antibiotics wisely. Achievement indicators: the percentage of seminar or workshop participants who can answer questions about moringa as an herbal antibiotic and the correct use of antibiotics increases from before the activity (pre-test) to after the activity (post-test).

Moringa Tea Making Training: The training was conducted and was attended by 30 residents of Simoangin-angin village, especially mothers who are interested in making moringa tea (Dixit et al., 2016). The training discussed how to make moringa tea from fresh or dried moringa leaves, as well as its health benefits, such as increasing immunity and reducing the risk of chronic diseases. Create a video tutorial on making moringa tea and its use as an alternative to medicine and health drinks. The tutorial video was shared with the trainees and also uploaded on social media to reach the wider community. Output Target: Improve the ability of the community to make moringa tea. Increase public understanding of the health benefits of moringa tea. Achievement indicator: the percentage of trainees who can make moringa tea according to the taught procedure increases from before the activity (pre-test) to after the activity (post-test). The way to make moringa tea is as follows: 1. Wash moringa leaves: First, take fresh moringa leaves and wash them thoroughly under running water. Make sure the leaves are clean of dirt and dust. Dry the moringa leaves: After washing, dry the moringa leaves by gently patting them with a clean cloth or paper towel. Make sure the leaves

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are dry before use. Blend until it becomes powdered. Next, put the dried moringa leaves in a blender and process until they become a fine powder. That way, moringa tea will be easier to brew and enjoy. Sip the ginger powder. Prepare the ground ginger to taste, to taste. Ginger gives this moringa tea a warm taste and distinctive aroma. Put 1 teaspoon of moringa leaf powder and 1/4 teaspoon of ginger powder in 1 tea bag. Take a tea bag, or you can also use an empty disposable tea bag. Put 1 teaspoon of moringa leaf powder and 1/4 teaspoon of ginger powder in the tea bag.

Put the tea bag in a glass and add boiling water. Place the tea bag containing moringa leaf powder and ginger in a glass or cup. Pour boiling water into the glass, just enough until the tea bag is completely submerged. Wait 3 minutes and stir. Allow the tea bag filled with moringa leaf powder and ginger to soak in boiling water for about 3 minutes. After that, stir the tea gently so that the moringa powder and ginger are well mixed. Lift the tea bag back. After the 3-minute soaking time is over, remove the tea bag from the glass. Make sure it has reached the desired concentration level. Add honey to taste. Finally, to give a little sweetness to the moringa tea, add honey to taste. Stir the tea again slowly so that the honey is evenly mixed. Moringa tea is ready to be enjoyed. In addition to providing health benefits due to its rich nutritional content, this moringa tea also has a unique and refreshing taste thanks to the addition of ginger and honey. Enjoy a glass of warm moringa tea to accompany your daily activities. Implementation Method: The community service team designed a program consisting of a seminar on the dissemination of research results on moringa as an herbal antibiotic and training in making moringa tea. Preparation for the event includes the procurement of the necessary tools and materials, such as fresh or dried moringa leaves, water, sugar, glasses, spoons, pots, stoves, blenders, filters, tea bags, labels, etc. In addition, the team also prepared invitations, brochures, guidebooks, video tutorials, pre-test and post-test questionnaires, as well as event support facilities such as banners, sound systems, laptops, projectors, etc.

The implementation of the event began with a seminar on the dissemination of research results on moringa as an herbal antibiotic, which was carried out at the village hall. The community service team provided an explanation of the potential of moringa extract as an antibacterial based on the results of the team's research and its wise application. Seminar or workshop participants were also given the opportunity to ask questions and discuss with the team. After the seminar or workshop was over, the team distributed brochures and guidebooks to the participants and also filled out a post-test questionnaire. The activity continued with training on making moringa tea, which was carried out at the house of one of the residents of Simoangin-angin village. The community service team provided an explanation of how to make moringa tea from fresh or dried moringa leaves, as well as its benefits for health. The trainees were also given the opportunity to try making their own moringa tea with guidance

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from the team. After the training was over, the team shared a video tutorial with the participants and also filled out a post-test questionnaire. After the activity is completed, the community service team will evaluate this activity, both in terms of participant satisfaction and program effectiveness. The evaluation was carried out using descriptions and qualitative analysis of the results of the pre-test and post-test questionnaires, as well as observations and interviews with participants and the target community. Program Sustainability: The community service team will ensure the sustainability of the program by providing training to a number of villagers to become agents of making and selling moringa tea. Thus, people can continue to utilize the potential of moringa as an herbal antibiotic and they can produce moringa tea independently. In addition, the team will also monitor and provide assistance to villagers on a regular basis to evaluate the progress of the program and provide assistance if needed.

RESULTS AND DISCUSSIONS

Community service aims to disseminate science, technology, and art to the public, enhancing various facets of life, including economic, policy, and social behavioral transformations. This initiative seeks to effectuate changes that influence individuals, communities, and institutions both in the short and long term. The final stage of this series of service activities involves evaluating the effectiveness of those activities. In order to achieve this goal, the Community Service team of the Health Analyst Study Program has carried out two main activities: Education and Dissemination of Research Results on Moringa as an Herbal Antibacterial. This activity is carried out through seminars and workshops involving resource persons from medicinal and health plant experts. Participants were given knowledge about moringa extract and the potential of other medicinal plants as an alternative treatment for bacterial infections, as well as the importance of using antibiotics wisely. Additionally, we distributed brochures and guidebooks to broaden the public's understanding of moringa as a herbal antibiotic and its prudent use. The result of this activity is an increase in public knowledge about moringa as an alternative treatment for bacterial infections and a better understanding of the use of medicinal plants as an alternative to antibiotics. More and more people are aware of the benefits of moringa as a safe and effective herbal medicine and are wiser in using antibiotics.

Training on Making Moringa Tea and Its Benefits for Health The training is carried out with practical methods guided by experts in making moringa tea and its benefits for health. Participants learned how to make moringa tea, its health benefits, and its ingredients. In addition, video tutorials are made as a form of education that is broader and easily accessible to the public through social media and online education channels. The result of this activity is

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an increase in people's ability to make moringa tea and a better understanding of its health benefits. People have become more independent in utilizing the potential of moringa as an herbal antibiotic and can produce moringa tea independently. Several similar community service services have also been carried out by lecturers in Indonesia. [5] Explains the program by 70 students who conducted a survey on the use of medicinal plants in the village and provided education and demonstrations on the manufacture of herbal preparations and the distillation of essential oils. [6] Explaining a program by an elderly companion group that introduces the potential of moringa seeds as an ingredient in herbal toothpaste for dental and oral health through online media. [7] explained the program by residents, which utilizes spices such as ginger, temulawak, turmeric, and serei to increase the body's immunity in the face of the Covid-19 pandemic. These programs demonstrate how universities can contribute to public health by harnessing the local potential of herbal resources.

The program explained by the Nasipanaf residents involved conducting a survey on the use of medicinal plants and providing socialization and training on how to process moringa leaves into puddings, shake flowers, and noodles. [10] The program by a food business group highlights the potential of moringa leaves as a functional food ingredient, transforming them into moringa leaf tea and moringa leaf sticks. explained a radio program that socialized information about antimicrobials from natural materials, including moringa leaves, through a talk show. These programs demonstrate how universities can contribute to public health by harnessing the local potential of herbal resources, especially moringa leaves. The advantage of this activity is that it is an education-based approach and actively involves the community. By involving expert speakers, seminars and workshops provide comprehensive information about the potential of moringa as an herbal medicine. Brochures, guidebooks, and video tutorials also increase people's access to knowledge more broadly. However, some of the weaknesses that can be identified are the limited number of participants that can be reached in seminars and workshops. In addition, the level of difficulty in the implementation of this activity lies in the effort to convey comprehensive and correct information about medicinal plants to the community, as well as ensuring the correct and appropriate use of moringa tea. In the future, the advancement of this initiative can concentrate on producing video tutorials and leveraging social media and other online educational platforms to enhance public outreach. This approach will facilitate easier access to information regarding moringa as an herbal antibiotic and the preparation of moringa tea, thereby promoting the dissemination of knowledge about medicinal plants for the benefit of public health within the activity's locality...

CONCLUSIONS

Received: 2023-08-10 Revised: 2023-09-27 Accepted: 2023-11-15 Published: 2024-01-22

The conclusion of the activities Education and Dissemination of Research Results on Moringa as a Herbal Antibacterial and Moringa Tea Making Training showed positive results in increasing public knowledge about the use of medicinal plants, especially moringa, as an alternative treatment for bacterial infections. Through seminars and workshops, the public was given information about the potential of moringa extract as an effective antibacterial and how to use it wisely. Brochures and guidebooks have also succeeded in expanding knowledge about moringa as an herbal antibiotic and the importance of wise use of antibiotics. In addition, moringa tea-making training has a positive impact by improving people's ability to make moringa tea and understanding its benefits for health. Video tutorials become a broader educational resource and are easily accessible to the public, helping to spread information about making moringa tea effectively.

However, although this activity provides benefits, there are several shortcomings that need to be considered for further development. Evaluation of the program needs to be carried out thoroughly to increase the effectiveness and satisfaction of participants. The community service team must ensure the continuity of the program by providing advanced training to the residents of Simoangin-anin village so that the community can continue to utilize the potential of moringa as an herbal antibiotic and produce moringa tea independently. In conclusion, this education and training activity succeeded in increasing public knowledge about the use of moringa as an alternative treatment for bacterial infections and the importance of wise use of antibiotics. Thus, this program has the potential to continue to grow and provide sustainable benefits for the community.

ACKNOWLEDGEMENTS

Please acknowledge collaborators or anyone who has helped with the paper at the end of the text.

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Received: 2023-08-10 Revised: 2023-09-27 Accepted: 2023-11-15 Published: 2024-01-22

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