

## HERBAL SUPPLEMENT INNOVATION BASED ON LOCAL WISDOM

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### Abstract

The use of herbal plants as local wisdom in the Gampong Nusa community urgently requires innovation in the development of safe and effective muscle relaxant supplements. The purpose of this study was to provide education and training on innovative ways to make herbal medicines based on Moringa leaves, which can improve community knowledge and skills. A participatory approach was used, involving 16 participants. The empowerment results showed an 85% increase in knowledge and skills in formulating muscle relaxant supplements from Moringa leaves. It is hoped that this innovative education and training can support the development of safe and sustainable herbal medicines based on local wisdom at the village level, as well as improve community health.

**Keywords:** herbal plant, *Moringa oleifera*, education, training, suplemen muscle relaxant

### INTRODUCTION

Indonesia, a mega-biodiverse country, boasts approximately 30,000 plant species, 9,600 of which have been traditionally used to prevent and treat disease. Herbal plants have become a popular choice for natural medicine, and the World Health Organization (WHO) strongly encourages their use (Candra, Fahrimal, et al., 2023; Santi & Candra, 2025). This diversity of herbal plants is also found in Gampong Nusa, Lhoknga, Aceh Besar. The area, devastated by the 2004 tsunami, has successfully recovered and become self-sufficient through the development of sharia tourism. Gampong Nusa utilizes plants based on local wisdom to create culinary delights for local, national, and international tourists. The use of herbal plants for daily cooking has not been matched by their use as traditional medicines to prevent and treat disease. Although medicinal plants are readily available in Gampong Nusa, the community lacks the knowledge and skills to prepare medicinal plants from harvest to formulations that are easily applied in treatment (Disbudpar Aceh, 2021; Santi, 2019; Santi, Candra, Amin, et al., 2025). One plant that grows in this region is kelor, or *Moringa oleifera*. The Acehnese call moringa "oen muroeng," a local delicacy often cooked as a vegetable. However, moringa boasts numerous benefits, including muscle relaxants (Santi & Candra, 2024). Therefore, a novelty from community empowerment is the innovative use of herbal plants, developed into a herbal muscle relaxant supplement. The goal of this activity is to increase the knowledge and skills of the Gampong Nusa community in utilizing moringa leaves as a herbal muscle relaxant supplement.

### LITERATURE REVIEW

In the past few decades, the utilization of herbal and traditional remedies has received growing public interest and confidence, both in Indonesia and in many other nations. This is due to herbal medicines being viewed as more natural, safer, and having a reduced chance of side effects compared to synthetic chemical drugs (Kamal et al., 2024; Nelly et al., 2024). In Indonesia, the abundance of natural resources, particularly local herbal plants, offers considerable opportunities for creating health products based on natural ingredients. Moringa leaves are recognized for their numerous advantages, including acting as a muscle relaxant. Nonetheless, the conventional application of Moringa leaves has not been supported by a comprehensive scientific understanding of their advantages (Candra et al., 2025; Santi & Candra, 2024). Progress in science and technology has created opportunities to create innovative, more efficient, and safer herbal medications based on Moringa leaves, such as muscle relaxant supplements. The effective creation of these educational formulations necessitates adequate assistance for the public, ensuring they grasp the advantages, correct processing techniques, and the significance of using standardized herbal products. Educating the public about innovative herbal remedies rooted in local knowledge is essential in promoting awareness

of the significance of safe and scientifically supported treatment. By engaging in suitable educational initiatives, it is anticipated that the community will enhance their understanding and favorable perceptions regarding herbal medicine use, while also learning to apply proper and safe processing techniques. Additionally, this education seeks to promote openness to innovation and the advancement of local herbal products, including moringa leaf supplements and muscle relaxants, ultimately enhancing the self-sufficiency and well-being of rural communities (Santi, Siregar, et al., 2023; Tahara et al., 2024).

Herbal supplements derived from plants continue to be studied and developed because they contain many bioactive compounds that are highly beneficial for health, particularly in increasing stamina and promoting muscle relaxation after activity or exercise. Muscle relaxant supplements are used by various groups, especially athletes who are actively involved in competitions. Nowadays, supplements are readily available on the market. Supplements can be categorized into several groups, such as gel, powder, drink, and vitamin formulations. Powdered muscle relaxant supplements can induce muscle hypertrophy, increase strength, and improve performance in workers (Candra, Fahrimal, et al., 2023; Santi, Zakaria, et al., 2023).

According to the WHO, almost the majority of the world's population consumes herbal plants for medicinal purposes. Their nutritional and chemical properties, affordability, accessibility, and potential therapeutic effects make plants highly sought after by almost everyone (World Health Organization, 2023). Herbal supplements have recently become very popular among all levels of society, including athletes and non-athletes. This is due to their phytochemical content and the widespread belief that natural products are healthy. The leaves, roots, stems, flowers, and other parts of the plant can be used as nutritional supplements. Moringa oleifera leaves contain secondary and essential metabolites that can promote health, such as anti-inflammatory, antioxidant, anti-allergic, antimicrobial, antiviral, antibacterial, anticarcinogenic, and other activities. Moringa leaf herbal supplements reduce tissue damage caused by inflammation, reduce oxidative stress caused by physical activity, and induce muscle relaxation (Santi et al., 2022; Santi, Siregar, et al., 2023).

## METHOD

This empowerment activity used an active participation method, encompassing education and training in the creation of innovative herbal muscle relaxant supplements for the Gampong Nusa community. The activity took place on March 19, 2026, at the Gampong Nusa Religious Study Hall. The educational activity began with an introduction to various types of medicinal herbs found in Gampong Nusa and continued with the selection of one species, moringa, to be formulated into an herbal muscle relaxant (Figure 1). The community service provider used PowerPoint presentations to educate the community. At the end of the session, participants were given the opportunity to ask questions about any material they did not understand.



**Figure 1:** Education to various types of medicinal herbs

The next activity was training on preparing muscle relaxant supplements, dividing participants into three groups to facilitate each participant's understanding of each step in formulating the herbal supplement. This training provided participants with the opportunity to practice processing moringa leaves into a muscle relaxant supplement

(Figure 2). The tools and materials used included a knife, scissors, blender, container, moringa leaves, packaging, and logo stickers. The closing session, which summarized the material, motivated participants to continue formulating herbal supplements.



**Figure 2:** Training provided participants

## RESULTS AND DISCUSSION

This activity was attended by 16 community members. Participants included young women and men, housewives, and sharia tourism workers with high motivation in herbal muscle relaxant formulations. 85% of participants' understanding of the questions and answers and formulations produced during the training session demonstrated an increased understanding and skills regarding the benefits of moringa leaves and the ability to make herbal muscle relaxant supplements. This increased understanding and skills demonstrate the success of the educational approach and training for innovative moringa herbal muscle relaxants. This aligns with the theory that learning that involves training followed by discussion can improve participants' memory and skills, and demonstrate readiness to apply knowledge, becoming key indicators of successful outreach activities. The positive response from participants demonstrates an open attitude toward innovations based on local wisdom, such as moringa leaves, in the desire to improve community well-being and health (Candra, Santi, et al., 2023; Candra & Santi, 2022; Santi, Candra, Waraztuty, et al., 2025; Santi & Candra, 2022).

Moringa as local wisdom in Nusa Village and can grow in a variety of conditions and can easily grow anywhere because its seeds are easily dispersed by nature. This plant is very familiar, and almost all of its parts can be used, including in traditional medicine, as a vegetable, and in other preparations. This plant belongs to the Moringaceae family, order Papaverales (Candra et al., 2024; Candra, Fahrimal, et al., 2023; Santi, 2015). Moringo oleifera is very beneficial for health because it has therapeutic effects that can be used as a muscle relaxant, antioxidant, anti-inflammatory, anticonvulsant, anti-diabetic, antihypertensive, antibacterial, anticancer, hepatoprotective, and neuroprotective. The secondary metabolic content of this plant includes quercetin, niazirin, niaziminin, methionine, cysteine, terpanoid, zeatin, alkaloids, tannins, steroids. Moringa oleifera consumed in the form of food, drinks or herbal medicine, this plant can provide effects in treating diseases, improving endothelial tissue function, lowering blood pressure, and other beneficial effects. The benefits of the essential and secondary metabolic content of this plant can help in reducing the level of pain, malnutrition, metabolic syndrome, diabetes mellitus, cancer, and play an important role as an antifatigue so that it is very popular in all levels of the population (Candra & Santi, 2017; Santi, Candra, et al., 2023).

## CONCLUSION

The educational and innovation activities for muscle relaxant supplement formulations went smoothly and enhanced the participants' knowledge and skills. The response was positive, and this has the potential to develop herbal products based on local wisdom on a sustainable basis. Therefore, this activity is expected to be the first step in developing herbal products to improve the welfare of the Gampong Nusa community.

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