



Local Wisdom in Agriculture and Herbal Production: A Case Study of the Northeast Region of Thailand

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The objectives of this research are to study the local wisdom in growing agriculture and herbal products. This research used qualitative research methods. By studying documents and collecting field data by surveys, interviews, observations, group discussions, and workshops. From a group of 25 persons providing information, the analysis was based on the objectives and the results were presented in a descriptive analytical manner. The research results found that agriculture and herbs have been around since ancient times. People in the Northeastern region knew how to cultivate them. Later, the government promoted the cultivation of cash crops, which led to the destruction of forests and the expansion of agricultural areas, which affected the quality of life. Villagers therefore came together to solve the problem by expanding forest areas, which led to traditional cultivation, combined with modern knowledge, and the cultivation of edible plants and herbs, which increased yields. The network group, consisting of people, private organizations, and government agencies, has cooperated in applying their wisdom to create products with diverse qualities and value.

Keywords: *Local Wisdom, Agriculture, Herbal. Production, Northeast Region of Thailand*

INTRODUCTION

We have been able to understand more about the hunter-gatherer diet from surviving artifacts such as carved stone and bone tools and decorative items and from hunting scenes in rock paintings, such as those at Lascaux, gathered food Wild plant foods, whether grasses, nuts, or tubers, were the dominant staple for most ancient hunter-gatherer societies. In most societies, women did the gathering. Overlooking a river valley and nearby swamps. (Hart-Davis, A.,2012). History The Definitive Visual Guide. New York: Media Development Printing Ltd. An important factor that led to human success in settling down was that humans discovered agriculture, learned how to plant and raise animals as their economic base. They worked hard to create an agricultural system with their own hands instead of wandering around looking for food like before. Therefore, they found that agriculture yielded enough to feed the population in the community.

Traditional and modern agriculture where farmers have encountered many problems. Currently, agriculture has developed to the era that calls agriculture "sustainable agriculture" or alternative agricultural systems, which are agricultural systems with similar principles and concepts. Sustainable agriculture emphasizes the balance of the ecosystem, good quality products that are sufficient for farmers and consumers, self-reliance, and giving importance to local communities. (Tangwongchai, B.1998) Subsistence farming is traditional farming where crops are grown for family consumption and the surplus is sold outside the local area. Natural farming involves restoring the environment's vegetation by mixing a variety of plants that are used as food and medicinal agriculture and herbs. Humans know many plants that can be used as both food and medicine to promote balanced health. This research aims to study the wisdom and solutions to forestry problems related to natural food production, the cultivation of horticultural crops and field crops as food and herbs for product processing for the people's network.

METHODS

The research topic: Local Wisdom in Agriculture and Herbal Production: A Case Study of the Northeast Region of Thailand has the following steps. This study was designed as follows:

1. Research Design The researcher uses **Qualitative Methodology** in the form of Field Studies or Ethnographic Studies. Which is a method of searching for the truth without extracting events that occur in the research field from a realistic environment the researcher tries to analyze the event and the entire environment or system in order to gain a thorough understanding, to see a multi-dimensional overview, and in finding truth or information it uses in-depth interview. Participant observation and taking notes about the process of growing Agriculture and Herbs that is available only is then interpreted to create an understanding of the use of local wisdom in this research field. 1) Selection of case studies The case study in this research is in Sakon Nakhon



Province a northeastern region of Thailand. Planting Agriculture and Herbs with its own wisdom in growing quality Agriculture and Herbs to be used in making medicines to treat patients, is the best choice. For the specific selection as a case study this time 2) Case study sampling this case study is a population of 25 people living in the northeastern region of Thailand. In selecting this sample group, they are considered key informants. They have the qualifications of not specifying their gender and being 20 years of age or older. They understand and have lived in the process of growing Agriculture and Herbs for quite some time. Using random specific examples to identify representatives of the target population from phenomena in the planting process. Research tools include surveys, observation forms, interviews, focus group guidelines, and workshop formats to collect data to cover the objectives.

2. Collection of case studies and interviews In-depth interviews with participants answer questions about the planting process for quality Agriculture and Herbs How? To be used to produce a quality drug used in the treatment of disease. The interview guidelines were developed by the researcher and advisor. There was an interview to collect. Information about event attendee information Data collection was done by considering the 25 participants, including the location of the interview. Used in the northeastern region of Thailand Each interview takes 60 minutes.

3. Case Study Analysis All data were studied using content analysis (Erlingsson and Briewicz, 2017) with 25 in-depth interview transcripts. Transcription of all in detail the researcher created the initial code book and then used the interview data. It is the starting point for developing a descriptive code set. Which consists of concepts and analysis to code data transcription 3.6 Examination of case studies The researcher validates data sources again by reviewing the interview recordings. And compare findings about the phenomenon to ensure Data triangulation was identified. Data analysis was performed by the researcher. Edited together with consultants for the accuracy of the information the criteria for qualitative validity for intensive triangular data analysis are as follows. 1) Insights 2) Examination of respondents 3) Data source 4) Comparison (Providing the opinion of the researcher) 3.7 Ethical Concerns In this section, the researcher is concerned that participation response in this research, participants joining may be at risk of protecting key informants the researcher therefore provided complete details, and formal informed consent was obtained from the participants before every interview. The8 information of key informants is therefore not disclosed to the public by the researcher. The information received was kept confidential and no contributor was identified as part of this study. The presentation of research results provides an overview of the data. And no traceable information is presented. Including key informants.

Results

Research on the issue of local wisdom in growing Agriculture and Herbs and products. The results of the study appear as follows.

1. World War II ended in 1945, causing a severe economic downturn. The Thai government therefore encouraged people to plant economic crops. Forest areas in the Northeast were destroyed because the government announced the National Economic and Social Development Plan in 1961, which led to more agricultural land expansion. When the economy declined, people became poorer and relied on the wisdom of their ancestors. The government has been promoting the economy for the past 25-30 years. The planting of monoculture crops such as cassava and sugarcane has led to the encroachment and destruction of forests, which are sources of food and herbs. Chemicals have been used that affect life and the environment. When the price of produce was low, and there was a shortage of food, people began to reconsider living with nature. In 1992, people established the Inpang group, which means the abundance that the god Indra created for mankind to use. This group is responsible for studying forest propagation, emphasizing the balance of nature, especially edible plants and herbal medicines. In 1993, the Inpang group network was expanded to 7 villages, and government agencies were the Sakon Nakhon Provincial Land Reform Office and the Sakon Nakhon Rajamangala University of Technology Isan. The main activities are forest restoration, local propagation, integrated farming training for the community. In 1996, the university of life training course was organized, expanding networks in many provinces for people who want to learn from the past to the present. There have been many successful projects. The knowledge of the network that can be transferred is 1) propagation of sweet vegetables, 2) processing of local fruit juices, 3) creating new generation leaders, 4) bringing the forest to the garden, and 5) processing herbs. This knowledge has been transferred to the public and students who come to study. The results of the study on the cultivation of agricultural plants and herbs in the Northeast indicate that the cultivation plots are areas that the public selects based on the criteria of chemical-free soil, suitable air and water. Finally, this area has all the elements that make agricultural plants and herbs of high quality when processed into medicine. The results of treatment Most patients recover from serious or other diseases. All members have confidence and faith in using agricultural plants and herbs here to take care of their health. They can be developed into medicine by experts. The process of growing agricultural plants and herbs to be processed into medicine and food for interested people.

2. The people who participated in the project shared their knowledge about cultivating various types of edible wild mushrooms by putting mature mushrooms in plastic bags, filling the bags with soil, and then planting *Dipterocarpus* seeds to expand the forest area. The mushrooms will stay with the roots of the trees permanently. During the rainy season, the mushrooms will

sprout and can be used as food and sold to generate income. *Melientha suavis* and *Calamus viminalis* Willd. In the past, they could only grow naturally. Later, the Inpang Network Group was able to research and be able to plant them normally. As for the steps to plant field crops and some herbs in the Northeast, the main steps come from learning about planting from many agencies and combining them with ancient wisdom. The results of planting have allowed people in the area to have complete yields. Field crops and herbs are different. The plants that are planted are vegetables, perennial trees, and *Curcuma sessilis* and *Zingiberaceae*. People in this region have the wisdom to plant plants, which generally starts with preparing the soil or planning the planting. Before planting, the soil should be plowed at least 2 times to make the soil soft, good ventilation and destroy field crops and herbs in it. After plowing, make a drainage ditch about 50 cm high, with a distance of 100 cm between each row. Then dig a hole about 40-50 cm wide, 40-50 cm deep, and a distance of about 30-60 cm between holes. In this case, fill the bottom of the hole with soil mixed with manure. Manure in the northeastern region of Thailand is a special formula, mixed with dry betel seeds in a ratio of 1 to 4 because field crops and herbs like sandy loam or loose soil mixed with betel seeds because it has high organic matter and a pH value between 5.8-6, which plants like very much. When the soil is ready to start planting, there are generally 2 popular planting methods: sowing seeds and sowing holes with seeds or seedlings.

3. The essential principles in the process of growing field crops and herbs to achieve high yields are: The planting plot has the following methods: First, the necessary nutrients for field crops and herbs and proper soil management, fertilization, adequate watering, and pest control using organic farming systems. The impact on the quality and quantity of nutrients that field crops and herbs require a lot of nitrogen, followed by calcium, potassium, magnesium, and phosphorus, respectively. Fast growth results in a high nitrogen requirement. Growers therefore attach great importance to this step by planting seeds at intervals. The second method is to collect flowers, field crops, and herbs for use as food, medicine, and commerce. Cleanliness and safety should be taken care of and packaging that is attractive to customers.

4. Knowledge about the use of various types of edible medicinal plants will be shared with the public, especially 29 youth students from Maha Sarakham University's Buddhism Club, who will convey the theory of types and medicinal effects as well as practice. Medicinal plants grown for making medicine that are controlled by law for medical use are plants in the Cannabis family, but young people should be introduced to understand moral principles and the dangers of chemicals. In contrast, this family of plants, when brewed into tea, will have the effect makes you relax and sleep comfortably. Herbs that make food taste good by mixing the leaves of three plants with sweet, sour, and astringent flavors together with glutinous rice flour. Can be used as a seasoning



Learning about agricultural and herbs processing: Experts at the Inpaeng Network Learning Center teach you to recognize natural products obtained from plants, animals, microorganisms, or minerals that are used to mix, prepare or transform into herbal products. Herbs that have changed their status to be different from the original for the benefit of a wider range of uses. There are many types of herbs, and their medicinal properties are different. Therefore, studying the form, taste, smell, color and name of the herb is one of the important factors to make the processing of herbal products of good quality. As well as keeping the product quality as close to the original product as possible. Many medicines that are produced must be cleaned, chopped into small pieces, dried, and mixed according to the proportions and symptoms of the disease. There are types of boiling in hot water, powder, mixing in hot water, and molding into something that can be swallowed.

5. Producing products from agriculture and herbs is a new matter in Thailand that has been studied in detail in order to be used in many ways. It is considered a process and has steps absolutely perfect. The questions asked about how the process and steps absolutely perfect a quality drug, the raw materials used by the Northeastern Region of Thailand are regarded as the wisdom of creating clean natural innovations due to the principles of and this planting plots is sensitive to the absorption of chemicals that are left on the soil well. Therefore, if planting plots in an area without soil, air, water, and high contamination the product of making medicine is incomplete along with the treatment effect, so it doesn't meet the intention of making it a good medicinal product. Instead, it turned out to be a bad effect that hurt. Patients to have symptoms worsen.

From the production system quality of planting until the preparation stage before the production of a drug, the Northeastern Region of Thailand has discovered that this medicinal plant is very sensitive to the absorption of residues in the soil, in the end, it becomes non-toxic. It's a drug that the area understands. When entering the drug-making process the innovation of the area's pharmaceutical production has machines. The modern and clean system can guarantee that the Northeastern Region of Thailand herbs oil is a good drug and gives high results for high therapeutic use. The area has started using the main drug for treatment, which is herbs oil, and smoking Agriculture and Herbs for treatment. Boiled herbs flowers, in the beginning, it was used to treat area members who were ill with diabetes, cancer, and many other diseases. Including the way of the Northeastern Region of Thailand people themselves, they can take care of themselves by using drugs. Homegrown herbs have always been, including the Agriculture and Herbs plant that was originally used by the area as both a vegetable and a medicinal herb.

Local for a long time, for example, use it in boiling chicken, boiling fish, or picture the top to eat as a vegetable to accompany chill paste. From the generation of grandfathers, and grandmothers, until the present it has interested people from outside the area there are people who know



information that the Northeastern Region of Thailand is the main and legendary area for growing Agriculture and Herbs breeds. The name of the country provides the most complete production of the country. People from outside therefore continued to enter the Northeastern Region of Thailand. Even patients and relatives of patients who have passed the process of receiving treatment from a state hospital have been refused further treatment by the state. Saw the survival options of life that Agriculture and Herbs treatment has a high chance of survival therefore traveled to the area quite a lot, as can be seen from the total number of patients who came through to use Agriculture and Herbs medicinal products and continue to use treatment is increasing in succession at present, including relatives of patients who come to take care of the patient, they also commented that the alternative treatment method this is another way to survive for patients in today's society. And confident in the medicine of the Northeastern Region of Thailand.

Discussion

The research results were found to be consistent and different from concepts, theories, and research studies. The knowledge found can be discussed as follows.

The Inpang Learning Center plays a role in restoring degraded forests, studying the propagation of edible plants that exist in nature, making the forests beneficial to the people. This center began expanding its network from the Inpang group to a widely known network, and has government agencies, namely the Sakon Nakhon Provincial Land Reform Office and the Rajamangala University of Technology Isan, Sakon Nakhon Campus. The main activities are forest restoration, local propagation, and integrated farming training for the community. The training curriculum is organized by the University of Life, expanding networks in many provinces for people who want to learn. From the past to the present, there have been many successful projects. The knowledge of the network that can be transferred is 1) Propagation of sweet vegetables, 2) Processing local fruit juices, 3) Creating new generation leaders, 4) Bringing forests to gardens, and 5) Processing Agriculture and Herbs. This knowledge has been transferred to the people and students who come to study. Many farmer groups have come to learn about mixed forest planting to apply in their areas, in line with the study of Nuryatia, R., et al.,(2019) the result showed that the PPM positively influenced environmental sustainability, contributed to economic sustainability and constructed on social sustainability. The capitals of agricultural potential and multifunction influenced the PPM sustainability either partially or simultaneously. The increasing creation added value of the multifunction product and the PPM agent regeneration is needed in order to suite between social, economic, and environmental aspects of PPM.

This qualitative case study conducted in-depth interviews with 25 people to answer questions. Research on Local agricultural and herbs Cultivation Wisdom in this work, we will have specific



knowledge of a local origin born from ancient wisdom that comes integrated to make agricultural and herbs more quality based on scientific ideas to mix with organic planting. The Northeastern Region of Thailand can manage soil, water, and air conditions as well as the minerals to keep agricultural and herbs intact resulting in quality agricultural and herbs suitable for use in the treatment of patients very well. Consistent with the research found that organic farming is an agricultural production system. Alternatives to avoid the use of synthetic substances such as chemical fertilizers. Pesticides and various hormones that stimulate the growth of plants and animals. As well as not using plants or animals resulting from genetic modification there may be pollution in the environment. Emphasis on the use of organic matter such as manure, compost, green manure, and biological fertilizers. To improve and nourish the soil to be fertile, crop rotation. Including the use of control principles for biological pests and focused on preserving soil fertility.

International Federation of Organic Agriculture Movements, commonly abbreviated as IFOAM, defines organic agriculture as an agricultural system that produces food and fibers in an environmentally, socially, and economically sustainable manner, emphasizing the principles of soil improvement, respect, and the natural potential of plants and ecological agriculture, organic agriculture, thus reducing the use of external production factors and avoiding the use of synthetic chemicals such as fertilizers, pesticides and animal pharmaceuticals, but at the same time trying to apply nature to increase yields and improve plant disease resistance. This organic farming principle is a universal principle that complies with local climate, and economic, social, and cultural conditions. It also creates a balanced diversity in relation to each other in the ecosystem, making efficient use of resources. It also reduces the risk of disease and insect problems. Pests spread as well. In addition. The use of chemical pesticides will be a natural enemy to pest control creating mail another method of agriculture Thailand has organic farming standards. Many national and international standards. Many national and international standards currently, organic farming is a food crop production trend that has been widely accepted around the world, which will have different forms and methods for each country and region. (Anat, 2020) For this reason, the Northeastern Region of Thailand's organic agricultural and herbs cultivation is a method of cultivation that has the wisdom that combines both traditional knowledge and integrating scientific principles into practice. Cultivating high-quality agricultural and herbs has high drug efficacy ultimately, it is beneficial to the patient, society, and the nation.

Humans are related to the exercise of power through history and fabricated stories. Social institutions are organizations that teach members of society to remember a bitter history in which agricultural and herbs was viewed as a disaster. By communicating through the socialization systems of family institutions, schools, universities, police academies, and the judiciary, such organizations create memories of the history of agricultural and herbs through a single set of knowledge. Agriculture and herbs has been viewed in terms of social value, medicinal value, or



other uses for human society, which is close to the concept of Anand (2021) He proposed that the history of agricultural and herbs in the daily lives of villagers agricultural and herbs is a plant that has been evidenced in Thai territory for at least 1,000 years. Hemp and cotton fabrics, as evidenced by traces of fabric fibers found on ancient bronze bracelets. Thai society has discussed agricultural and herbs since the Ayutthaya period. The archeology of agricultural and herbs from the past from Foucault's point of view. agricultural and herbs that Thai society is currently debating is not pure history but rather a "social object" or "object of study".

Agriculture and herbs wisdom and situation analysis results at the community level Enterprise group level and at the hospital level, the overall picture is at a level that is beneficial to the academic community in studying the wisdom of applying agricultural and herbs for the public's sleep. The informant has experience with problems related to medical agricultural and herbs activities. Problems from illness Problems from accessing the services of both public and private hospitals problems from using antibiotics as prescribed by a doctor Including seeing medical experiences, both strengths and weaknesses, as well as obstacles and opportunities in using agricultural and herbs as an herb. Herbs has a simple traditional method of cultivation and production, while the international method involves cultivation and processing that require knowledge and expertise. The chemistry from which Agriculture and Herbs oil is extracted has been studied in modern medical techniques. Patients and their relatives have already chosen to use medical herbs. Currently, the treatment method is accepted by most people. Some groups of people answer that medical herbs is a choice for people today.

Wisdom about herbs has been passed down through trial and error and accumulated as experience for generations to come. Countries with a variety of herbal resources, especially the Northeast, have methods for preparing herbal medicines to treat many types of diseases. Herbs have been studied for their benefits to treat disease and maintain health. This area of folk wisdom has brought many plants together to make medicine, including agricultural and herbs. In addition, it is also combined with belief. Nowadays, many organizations focus on learning herbal medicine. Practicality and how to transfer knowledge about alternative treatments to people who need to take care of their health. This part of the content is consistent with the research of Patthira Phon-ngam (2021). The method of treatment by the folk healers was related to different beliefs and local cultures. As Buddhists, the folk healers believed that illnesses were caused by the Four Great Elements and the Five Aggregates. In addition, they believed that astrology and the horoscope could help predict the diseases of a person. The processes for transferring the wisdom of the folk healers included the inheritance from the ancestors, the transfer among the family members, the transfer by the traditional healers to interested persons, the transfer from the traditional healers to the patients completely cured by the treatment, the transfer from the academic institutions and the transfer by the traditional texts of drug formulary. The methods of transferring folk healers'



wisdom included the transfer at the family, community, and national levels by the use of verbal communication, such as word of mouth and lectures. The transfer could be done by other means, such as demonstration, actual practice, self-learning from media, exhibition at learning resource centres and written records.

Thailand before legalizing agriculture and herbs as a drug. Previously, herbs were a plant that was smoked to relieve stress. It agricultural and herbs was an herb that was mixed with other drugs. Including substances that improve the taste of food. Disadvantages of herbs: because herbs have a stimulating effect, if the user uses it in excessive amounts, it may cause the user to feel intoxicated. Taking herbs in large amounts over a long period of time causes your body to deteriorate and may lead to disease more easily. Therefore, you must learn how to use it to understand. Pharmacy and medical scholars' study to understand the benefits and harms in order to change the image of herbs as a disaster that is highly toxic to humans. Such content is consistent with Charat-archa (2021). The content states that the state or those in power have created meaning about herbs through the state's ideological mechanisms since 1925. From the issuance of the Ministerial Regulation on herbs, has become It is a drug and is illegal. Agencies operating in interpreting and creating myths about drugs include legal institutions, political institutions. Educational institutions, health institutions, and media institutions have demonized herbs as a deadly drug. These institutions serve to reproduce ideological meaning through the symbolic image of a bong-sucker in the backs of elementary school students' notebooks. Campaigning against drugs or even instilling government officials to view herbs as an enemy and not including berbs in medical education content at the higher education level. News presentation of drug arrests Drug users with aggressive behaviour these are operations that stereotype herbs as something bad and a common criminal in society.

Herbs, if used in appropriate amounts, can bring many benefits, such as relieving dizziness, nausea, and vomiting, if people with depression receive this substance, it will help reduce emotionally violent behaviour. Research has found that herbs can make serious muscles such as cancer shrink and become stronger. For those who have insomnia, consuming herbs and herbs can help you sleep better. When used as a condiment for meat, especially poultry, the food tastes even better. Eating them can help increase your appetite. The general public may use it in many ways, while those who control eating, for example, athletes, are a group that uses more energy in their daily life than the general public. Therefore, there is a need for special nutrients as the energy demand increases. To provide the body with a reserve source of energy and strengthen the muscles. Controlling and training allows athletes, which the substances contained in herbs can help relax. Herbs, when used as a condiment, will make meat dishes taste good and will provide the required amount of protein, which is one way to help strengthen the body. The above points are consistent and close to Hakan, et al. (2022). Important findings were obtained within the scope of the study; Protein is the main source of energy used by muscles during exercise in 54.8% of athletes. When 50.2% of people



want muscle gain, the basic dietary change required is to increase the amount of protein in the diet. 48.4% of vegetarian athletes can meet their protein requirements without using protein supplements. 45.8% Fruits and Vegetables are the best sources of calcium. Milk, Yogurt, and Cheese with 49.2% are the best sources of magnesium. 57.2% of Athletes A physically fit person with an adequate diet can improve his performance by consuming more vitamins and minerals. 66.2% of athletes should take vitamin C as a routine supplement by athletes. 50% of athletes test the purity and safety of all supplements before the sale. As a result of the study, when the above findings were examined, it was concluded that the knowledge of the athletes interested in the Olympic branches is not at the desired level and that they have partially wrong nutrition information. It is thought that it is necessary to increase nutritional knowledge.

Products from herbs ethnic groups have worked together to develop the products to be interesting. It is necessary to have a packaging design that shows details in order to attract customers. This is consistent with the results of the study by Pratumanechai, K., et al. (2023). They found that design thinking results in product innovation for the community, which has a variety of beautiful prototypes that clearly indicate the type of product. Appropriate and beneficial for practical use due to the emphasis on developing product packaging and labels that focus on the design thinking process together in accordance with the principles of packaging and branding elements to achieve Comes to indicate the appearance of different products, adding interest to the product.

The new knowledge discovered.

The research results found new knowledge in 2 areas: 1) People saw the changes in natural resources that affected their way of life, so they began to be interested in the wisdom of using soil, water and forests that did not affect the health of the villagers. They turned to study and research wild plants, propagated wild mushrooms and local food animals that were propagated until they became valuable. 2) The farmer network consisted of private organizations, government agencies and people who were willing to solve problems in cultivation, as well as food and herbal products. The combination of traditional and modern knowledge used in researching cultivation and processing of various agricultural products.

CONCLUSION

This research aims to study the wisdom of planting local plants and herbs that can be planted for living, which requires deep understanding of organic farming to lead to quality cultivation. The research participants also stated that good medicine must come from good cultivation methods. The Northeastern region of Thailand has been cooperating closely and actively until the products are processed from field crops and herbs in the community with wisdom in planting without leaving toxic residues. Field crops and herbs are complete and provide complete medicinal



substances to process non-toxic products. When used to treat patients, the results are clear that the patients' symptoms improve.

This study still needs to be studied further because this study is a study of knowledge only about the process of growing field crops and herbs, which does not cover the process and method of producing quality field crops and herbs. In terms of knowledge, it is necessary to expand knowledge. There should be studies on nutritional supplements or soil improvement and bringing in a suitable environment to strengthen the knowledge base of nature or local experiences to create another success. In order to expand knowledge to be able to transfer to society and to many other sectors, society still has some doubts and doubts about the use of field crops and herbs for real treatment and can be seen from the process of treating patients instead of using antibiotics and providing knowledge to those who are seriously interested. Society will have good medicine from nature and ultimately not be harmful to the health of the people.



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