

## The Effectiveness of Using Herb in Traditional Malay Medicine and Healthcare in Central Zone Community, Selangor

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### ABSTRACT

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The use of herbs for medicinal purposes is essential. Herbal treatment had a positive impact on human life. Some people are too skeptical and lack confidence in the effectiveness of using herbs for treatment purposes. This situation occurs because the advancement of medical technology and modern medicine is more forward than traditional medicine. Herb-based treatment is still not able to provide traditional medicinal services that are conducive and comprehensive in terms of function, nutrients and comprehensive potential. The focus of this study is to expand knowledge by examining the effectiveness of herbs and treatment in human health care based on the 'Theory of Planned Behaviour' approach. The purpose of the study was to identify the types of herbs, analyze the response to the effectiveness of the use of herbs in health care based on traditional Malay medicinal methods. This research done based on qualitative and quantitative methods including literature review, library research, questionnaires and interviews. The results showed that traditional Malay medicine is a complete herbal treatment method and has strong fundamental values and is necessary in the science of medicine. Studies have also found the effectiveness of herbs in treating various types of physical and spiritual ailments. The findings proved that the use of various herbal plants is still relevant to treat diseases, contributing in the field of medical science just like existing modern medicine, especially in the issue of health care and a prosperous human life.

**Contribution/Originality:** This paper is written to discuss the use of herb in traditional Malay medicine and their impact on community healthcare. This research focuses on the properties of plants and herbs that affect how the body is cared for and how to preserve human health based on the different types of herbs and the best ways to treat them.

## 1. Introduction

The discussion on the use of herbs in health care has been thriving a long time ago and it is still a relevant topic nowadays. It is a form of alternative medicine method that complements the modern medicine. There are around 13, 000 types of herbal plants being used to date. This kind of treatment involves the beliefs and practices that still remain to this day in accordance to the progressing development of science and technology in the field of medicine in which the medicine is very important in maintaining the well-being of human life by means of preventing and curing. In the meantime, this medicine has been practiced ages ago. It is said to have started in the ancient times to the end of the 19th century. Most medicines are mainly based on fresh plants, dried herbs or certain parts of the plant. This knowledge is believed to have existed earlier than the 7th century in which in the era of still no manuscripts or notes on traditional medicine.

At the same time, traditional Malay medicine shows a picture of the interaction of human needs with the interconnected nature, especially in the field of medicine. In this matter, there is no issue of competing with modern medicine. Sometimes, there are diseases that cannot be cured with modern medicine, but with ALLAH's permission, they can be cured with traditional medicine. [Aminnuraliff \(2019\)](#) found that there are some people who are still confused on the role of Malay traditional medicine. In this case, there are still some parts of the community that are less confident in traditional medicine in terms of its benefits and safety. This might be due to the fact that the community is rarely exposed to the role of the treatment itself in the community, especially from the aspect of the types of herbal plants, their benefits and functions etc. We highlight research questions such as, what are the types of herbs in health care? and what is the perception of the effectiveness of using herbs in health care?

## 2. Literature Review

The use of plants in traditional medicine proved to cure diseases. [Omar et al. \(2017\)](#) reported that the use of herbal plants or tree roots in the Traditional Medicine in Siamese Community, Kedah gives various effects to cures for diseases. This study was conducted involving a total of 30, 000 people within the Siamese community in Kedah. Field and literature studies involving interviews and observations among the Siamese community have been carried out. The purpose of the study is to determine the role of traditional medicine of the Siamese community in Kedah, which have two known functions, namely curing disease and preventing oneself from being affected by disease. The research problem highlighted is that traditional medicine is still needed to complement some diseases that may be found to be incurable with existing modern medicine and treatment.

This study also found that there are many cases of patients who switched from modern medicine to traditional medicine that can provide complete healing such as twigs, leaves, roots and other parts of the herbal plants. The research also highlighted on how ingredients are prepared through various methods used for the purpose of effectiveness and prohibitions against the use of herbs for the treatment of some diseases. Next, a study [Zahar et al. \(2016\)](#) adapted the study methodology that involved literature and electronic search of turmeric herb known as *Curcuma longa*. The study focused on the aspects of the metabolic effects of curcumin compounds explained in previous studies and scientific journal publications and they aimed to update information by obtaining opinions and even involve potential further research questions to be answered.

In addition, the research also dived deeper in terms of the relationship between the influence and function of curcumin in obesity and diseases related to metabolism that have been studied. The same time, they found that there is a scientific correlation between the activity of curcumin that supports weight loss with a reduction in the incidence of obesity-related diseases. In this case, curcumin able to interact with insulin and affect the process involved in hyperglycemia, hyperlipidemia and other symptoms related to obesity. Observational studies based on the results of clinical trials, shown that turmeric herb is effective in treating diseases such as diabetes, irritable bowel syndrome and cancer while at the molecular level, turmeric herb regulated signaling pathways in the human body. Based on this study, there is a difference in terms of the research methodology used in which it only involved clinical findings to determine the effect of curcumin to human health problems. The implementation of this study was classified into two objectives in which the first is to identify the types of herbs, analyze the effectiveness of the herbs in various diseases based on traditional Malay medicinal methods. As a whole, it discussed the different types of herbs, treatment methods, functions, and analyze the significance of medical practices from different community backgrounds.

### 3. Methods

This methodology followed in this study based on the Theory of Planned Behavior ([Ajzen, 1985](#)). Sampling and data collection was done randomly by using simple random sampling (short term). The targeted respondents were selected around the central zone of Selangor and it was one third of the total population of Selangor district (5,694,945citizens) ([Jabatan Statistik Malaysia, 2022](#)), it is estimated that there were 10 housing estates and each estate is sampled from 40 to 70 respondents from the total population. The data was collected based on the in-depth interview and questioner (physical and online form). There were a total of 7 respondents participated in the interview in which they were divided into two categories, namely medical consultants and five patients. The data from the respondents was obtained through physical distribution of questionnaires and online (Google Form). On the other hand, the distribution of survey forms was carried out that involved 327 respondents. Then, the number of questionnaires that have been collected were analyzed based on the framework of ([Krejcie & Morgan, 1970](#)), which involves a total population sampling of 2,600 in around 327 samples. This study also used literature highlights and library methods. The data was analyzed by using IBM SPSS Statistics 25 software (t-Test, descriptive analysis and ANOVA).

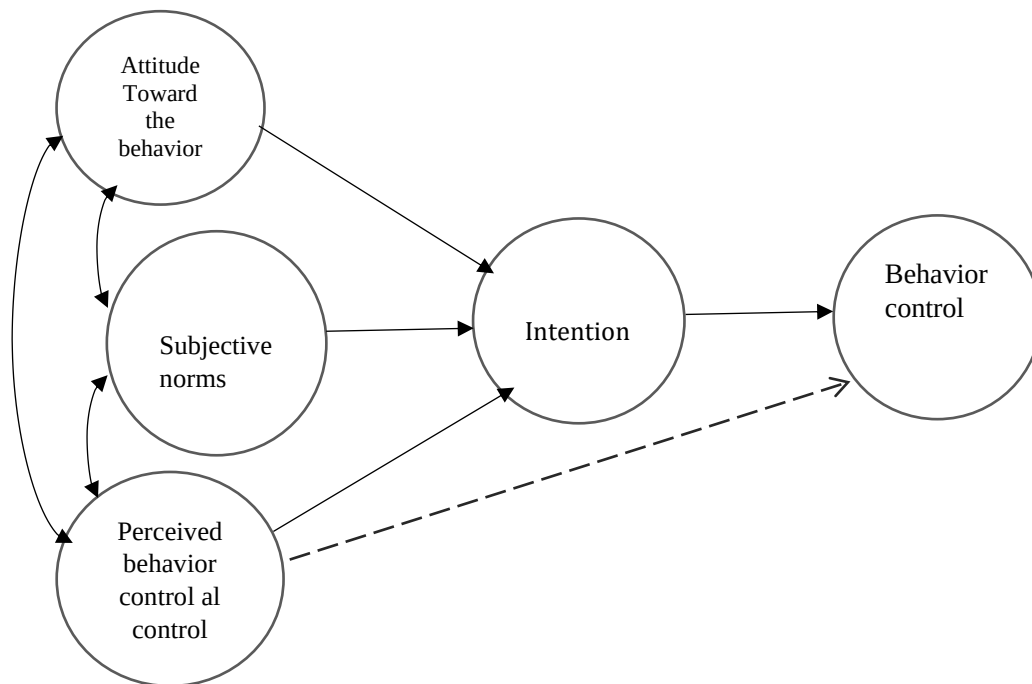
#### 3.1. Theoretical and Conceptual Framework

Based on [Figure 1](#) the main factor of planned behavior is the individual's intention to perform something that is given behavior. This theory was chosen because it proves to be an effective theoretical framework in determining the level of effectiveness and the factors that influence a person to practice medicine.

Based on the theory, 5 themes of interview questions was constructed. That are "Perceptions on Traditional Medicine", "Subjective Norms", "Perceptions on the Control over Traditional Medicine Practices", and "The Desire to obtain Traditional Medicine and Attitude Toward the Behavior also Intention". Five specific interview questions are as follows:

- i. Intention: the effect of using herbs which have the highest tendency to be practiced in health care?
- ii. Behavioral control: is there individual behavioral control over the practice on the use of herbs from different respondent's backgrounds?
- iii. Attitude: the relationship between individual attitudes to practice traditional medicine by means of using herbs in the community?
- iv. Subjective norms: the perception on the community's belief towards traditional Malay medicine?
- v. Perception about behavioral control (perceived behavioral control): the main factor that influences and controls people's behavior to use the traditional medicine as an alternative treatment?

Figure 1: Theory of Planned Behavior Adapted from Ajzen (1985)



#### 4. Results and Discussions

Based on the study sample, a total of 11 items was identified to provide a true picture of the types of herbs and healthcare practices among the people in Selangor. The acceptance towards herbal treatment showed that the Selangor community still maintain their health care through nutrition and treatment using herbal plants. This is due to the confidence towards traditional medicine depends on their practice from the time of their ancestors which has become a culture that is still relevant in the society. In this case, medicines based on herbal plants as an effective treatment were used involving various methods appropriate to the type of disease to maintain human health. Among the type of herbs used are as listed in [Table 1](#) below.

According to [Table 1](#), out of a total of 327 respondents, the study found that majority of respondents (24.2%) representing a total of 79 people used cinnamon, cloves and star anise as referred to Item 1. followed by earth bile (12.5%) with a total of 41 people (Item 6) while the lowest used herb (5.5%) is the cat's whiskers that equals to 18 respondents as referred to Item 8.

Table 1: Name of herbs used in Selangor District.

| Number | Types of herbs                                                                            | N   | %    |
|--------|-------------------------------------------------------------------------------------------|-----|------|
| 1      | Cinamon (Cinnamomum zeylanicum), cloves (Illicium verum), star anise. (Eugenia aromatica) | 79  | 24.2 |
| 2      | Bidara fruit (Ziziphus mauritiana)                                                        | 43  | 13.1 |
| 3      | Pegaga (Centella asiatica)                                                                | 26  | 8.0  |
| 4      | Fatima's kacip                                                                            | 35  | 10.7 |
| 5      | Kaduk tree (Piper sarmentosum)                                                            | 26  | 8.0  |
| 6      | The gall of the earth (Andrographis paniculata)                                           | 41  | 12.5 |
| 7      | A sedum tree ( <i>Melastoma malabriticum</i> )                                            | 24  | 7.3  |
| 8      | cat's whiskers (Orthosiphon <i>stamineus benth</i> (O. Aristatus Blume)                   | 18  | 5.5  |
| 9      | Others                                                                                    | 35  | 10.7 |
|        | Total                                                                                     | 327 | 100  |

Based on the analysis, the study found that 156 of respondents out of 327 use housing herbs representing 47.7% of the total respondents compared to wild and foreign herbs. The housing herb category such as fragrant lemongrass, ginger, galangal and turmeric as referred to Category 1 (Table 2), followed by wild herbs such as cinamon, star anise, cloves, *kaduk* and Tall with 41.0% that represents 134 people as referred to Category 2. Finally, the findings of the study found that foreign herb categories such as black cumin and curry leaves have the lowest percentage (11.3%) that represents a total of 37 respondents as referred to Category 3.

Table 2: Descriptive Analysis of Three Categories of Herbs

| Number | Category of Herbs                                                                                                                                               | N   | %     |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------|
| 1      | Housing herbs: Fragrant lemongrass, ginger ( <i>Zingiber officinale</i> Ross, galangal ( <i>Alphinia galanga</i> (L.) and turmeric (Syn: <i>Curcuma longa</i> ) | 156 | 47.7  |
| 2      | Wild herbs : cinamon (Cinnamomum zeylanicum), star anise (Illicium verum), cloves (Eugenia aromatica), kaduk (Piper sarmentosum) and pegaga (Centella asiatica) | 134 | 41.0  |
| 3      | Foreign herbs : Black cumin ( <i>Nigella Sativa</i> ) and curry leaves ( <i>Murraya koenigii</i> )                                                              | 37  | 11.3  |
|        | Total                                                                                                                                                           | 327 | 100.0 |

This study highlighted that there is category of herbs that are used more prevalently than the others as depicted in the result section. Thus, there are many possible factors that led to such findings in which the first being that the community used particular herbs due to its ability to provide healing to some types of diseases (Johari, 2022). Next, the housing herbs are also easier to be found as well as grown in Malaysia as compared to foreign

herbs. In this case, Malaysia experienced a temperature that is more suitable for the cultivation of herbal plants and is often used as a daily food item for the community.

This study focused on 3 categories of herbs, first; housing herbs; refers to the practice of planting herbs or the concept of compound that has been practiced by previous communities and herbs used for daily life ([Salfarina & Daniel Ugih, 2013](#)), Second: wild herbs, defines wild plants as having quite diverse characteristics, due to the fact that the plants come from different families that have the refinement of types and the diversity of shapes, sizes, colors, and textures so that they have varied roles ([Solikin, 2004](#)). Third: foreign herbs are medicinal herbs generally defined as plants, plant parts, or plant extracts used for medicinal purposes. The findings of the questionnaire study are supported by the results of the researcher's in-depth interview with Tuan Dhulkipli Bin Ujang, a 65-year-old who has suffered from flatulence, gallstone disease and kidney disease on the right side for the past 12 years and will undergo surgery. Based on the results of the interview, it was found that, since he has been experiencing this health problem, he has been eating healthy foods such as watermelon and fragrant lemongrass. Apart from that, he mentioned that the fragrant lemongrass was prepared by boiling the lemongrass, then drinking it. He found that such practice able to control and maintain the balance of his body. Similarly, a study by [Hasan et al. \(2011\)](#) depicted that a total of 64.9% of patients with diabetes in Malaysia have practiced the use of herbal-based medicines for treatment and there are still many people today who switch to consuming herbal products that are produced naturally as an alternative to conventional modern medicine.

Based on this study, apart from it is easily available, the possible justification for the high frequency of using housing herbs they were found be able to provide quick healing to treat many diseases among the community in the Selangor district. This proved that a patient's desire can be expected through intention and action with a method of controlling his behavior in influencing the attitude of the patient as a factor to practice this mode of medical method.

In the meantime, Numerous studies on these plants have been conducted as a result of the rapid advancement of science worldwide. Before, herbs were utilised as culinary items in daily life. Now, same plants are used as one of the key components in a variety of health products ([Shahibuddin, 2001](#)). According to [Soepadmo \(1999\)](#) 1,230 species or 8% of the plants in our nation, are thought to have therapeutic worth and have been employed in traditional herbal medicine preparations since ancient times. Next, the result of an interview with Tuan Mohammad Ashil aged 70 years old, who is a kidney patient whom being treated at the Universiti Putra Malaysia Teaching Hospital, and he is about to undergo surgery. He stated that his nutritional care has been controlled as best as possible by reducing intake of sensitive food such as durian that may result in more severe diseases. In addition, when he is at home, the best way of food handling is by cooking it ourselves. In accordance with that, the preparation of food that contains ingredients of herbal plants with high nutritional value and healthy antioxidants while at home will definitely be safer and healthier in line with his health condition. According to [Halsted \(2003\)](#) stated that the use of herbs has proven its own function in this era of advancement of various technologies, in the field of medicine and the role of food containing nutrients-conferring benefits that are believed to be the main preventive medicine for most diseases suffered by humans cannot be denied.

The essence of the results of the interview shown that the respondents have the intention after finding out that the herb may confer health benefit for his condition and that

knowledge elicited his action that is later translated into attitude towards the practice of herbal-based medicine and he is more inclined to take care of his health appropriately. Meanwhile, it also includes the perception of beliefs about the control of the patient's behavior related to the intake of herbal plants in their daily diet is the main factor as the patient's efforts and measures to control and improve the quality of his health.

In the meantime, the highest percentage refers to housing and wild herbs shown that there is also an awareness among the Malaysian community that emphasizes that the cultivation of local herbs, seasonal herbs and herbs from abroad has become part of the practice among the Malay community. In this case, the awareness among the community to use herbal plants is believed to be one of the most important factors that contribute to human health care. This can be confirmed by the researcher's interview with members of Darul Syifa', Prof. Assoc. Dr. Adi Yasran (interview, 2022) in which he stated that the community's awareness to practice herbal treatment is due to some members within the communities believed that herbal plants are more effective than modern medicines and they felt that modern medicine may sometimes have side effects. This is also acknowledged by some doctors themselves stating that taking modern medicines can also bring harm. Similarly, the excessive use of herbs, for example using ginger to treat flatulence, body wind and other ailments will definitely have its own cons. However, there are also natural herbal plant-based medicines that are produced in the form of pills or liquids that can treat certain types of diseases. In addition to that, the community is also convinced that the use of herbs is less risky in terms of side effects. Besides, the awareness also arose due to the herbs are easy to be obtained and some residents may even have their own plants in their residential areas, so it is not surprising that they are being practiced in their daily lives. The herbs that have been listed can help to cure some diseases and be a complement to modern treatment that may take time to exhibit its curative properties. According to Terengganu Museum's Tib Book (Harun, 2017) he said that common diseases such as high fever, cough, sinusitis, vomiting, eczema, eye, limb pain and others can be treated by using ingredients from herbal plants and other types of related plants.

Besides, herbal plants also serve as a source of food in addition to being a form of medicine to meet the daily needs of the community. This is due to there are some plants that are difficult to be found and they can only be found in specific area, in the Selangor area. Examples of the plants include cinnamon, cloves, star anise, *habbatus sauda* and *pegaga* these types of plants also require a relatively long growing process. Furthermore, nowadays, there are variety of types of herbal plants being planted in designated park or areas in the hands of experts such as the University of Putra Malaysia Agricultural Park, the UPM Conservatory Park, Mardi and the Biodiversity Unit (Institute of Biosciences). These bodies specifically involve in scientific research in which various herbs are neatly maintained under management and care according to the established procedures and standards.

The findings showed that majority of the respondents in the central zone of Selangor district believed the properties and functions of each of the herbal types listed are capable of having a desirable effect in the field of medicine. That is in line with the views of Tuan Suboh Bin Kasim, a 56-year-old heart attack survivor. Based on his opinion, the way someone eats, is the main contributor to disease because most of the diseases originated from our own stomach. In addition, he also experienced gastritis which caused his heart to palpitate and caused him to feel fear. From that point, he started to try drinking goat's milk as his breakfast and he found that this particular routine has been able to prevent

the frequency of gastric attacks and his gastric problems are also getting better. In addition, he also tried to eat soupy foods that contain various herbal ingredients such as coriander leaves, shallots, garlic, lemongrass, ginger and others and such practice has also been shown to relieve his condition. This situation meets the element of intention in which he was more inclined to practice the medical method (i.e., taking herbal-based food) as a result of the attitude of having a positive perception of the belief that herbal-based traditional medicine has a function that can lead to outcomes of good health of the patient. According to [Manaf et al. \(2009\)](#), Malaysia is a center for the production of medicinal plants with high potential because it has a very wide tropical forest and covers natural treasures with a total of 7000 species of herbal plants that have medicinal value.

In essence, the data on the abundance of herbs being found are also influenced by the weather and temperature in a certain area. For example, countries that are located along the equator line which is around 0° to 10°N and 0° to 10°S (i.e., for Malaysia) is in the hot equatorial climate zone and such zone is conducive for herbal plants' growth. In order for a planted herb to be considered as medicine, it must be shown to be able to contribute benefits to its users. Moreover, based on the statement issued by the World Health Organization (WHO), it is estimated that at least 80% of the population of the Third World today still dependent on the traditional medicine particularly the herbal-based medicinal plants their health care whether it is a type of housing herbs, herbs imported wild or even foreign herbs ([Platel & Srinivasan, 1997](#)). The findings of the study also found that the factors of soil type and temperature greatly influence the cultivation of these herbs. Most soils in Malaysia are acidic with a pH value of 4.2 - 4.8. Peat soils and acid sulfate soils have a pH value of less than 3.8. The optimum pH value for growing vegetables and plants in Malaysia is 5.0 - 6.5 ([University Agricultural Park UPM, 2012](#)).

As a result, it can be justified that the categories of herbs that have been listed in the table are herbs that are practiced by the community in the regions of the state of Selangor. A variety of nutritional content benefits the user and they are used in various ways as an important ingredient in the cooking of daily food as well as becoming an important source for the care of the Malay community as depicted in [Table 3](#) below.

Table 3: Types of Herbs based on its category (Housing Herbs, Wild Herbs and Foreign Herbs)

| Housing herbs                                                                                                                                                                                          | Content                                                                                                                                                                                                                     | Function                                                                                                                                                                     | Disease                                                                                                                                                                                                                                                           | Testimony                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Citronella ( <i>Cymbopogon nardus</i> (L) rendle)<br><br>Figure 2: Lemongrass<br>Fragrant<br><br><br>(Self Picture) | The main content of lemongrass is essential oil with components citronelal, geraniol, citroneolol, geranyl acetate, citronelyl acetate, citral, caviacol, eugenol, elemol, cadinol, cadinene, vanillin, limonene, camphene. | Functions as a perfume, soap, treating rubefacient, also acting as a drug that stimulates sweat production ( <a href="#">Jabatan Perhutanan Semenanjung Malaysia, 2022</a> ) | Having antibacterial activity can heal wounds because Staphylococcus aureus bacteria are found on wounded skin, including burns ( <a href="#">Healy, 2006</a> )<br><br>Lemongrass essential oil made in a gel preparation can hold and create a moist environment | (Respondent 1):<br>fragrant lemongrass also is the herb good in treatment traditional. Among them is water fragrant lemongrass which boiled and drank able relieve bloate stomach and reduce stone pain coral Thus, according to him able affects positive for relief stomach problems and stone coral Including |

|                                                                                                                                                                                |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                | Lemongrass oil contains 3 main components, namely citronelal, citronellol and geraniol (Wardani, 2009)                                                                                                                                                                         | around the wound so that it can accelerate wound healing, and mosquito repellent, (Boateng et al., 2008)                                                                                                                                                                                                                                   | essential oils produced with the aim of massaging swollen legs, sprains, wounds and flatulence.                                                                                                                                                                                                                                                                                                                                                                                                           |
| <p>Figure 3: Ginger (<i>Zingiber officinale</i> Ross)</p>  <p>(Self Picture)</p>              | <p>Contains alkaloids, flavonoids, polyphenols, saponins, steroids, tannins, fiber, carbohydrates, vitamins, carotenoids and minerals (Otunola et al., 2010; Shirin &amp; Prakash, 2010); natural antioxidants such as gingerol, shogaol and zingeron (Hori et al., 2003).</p> | <p>Shows potential beneficial effects in obesity conditions. In addition to reducing serum glucose, insulin and lipid levels it can also significantly slow down weight gain. Based on these beneficial effects, <i>Z. officinale</i> can be considered as an adjunctive herbal therapy in obese patients. (Goyal &amp; Kadnur, 2006).</p> | <p>Including arthritis, rheumatism, sprain, pain, muscle pain, sore throat, indigestion, vomiting, fever, hypertension, cramps, constipation, dementia, helminthiass and infectious diseases (Ali et al., 2008)</p> <p>(Respondent 2): Usage able ginger help pass away intestinal process in the stomach humans. Besides, the way preparation the ginger his usual do that is insert sliced ginger in tea water hot as drinks.</p>                                                                       |
| <p>Figure 4: Pennywort (<i>Centella asiatica</i>)</p>  <p>Source: Herba Malaysia (2022)</p> | <p>Content of tripterpenoid glycosides (asiaticoside, asiatic acid, madecassic acid, madicassoside), flavenoids (kaemferol &amp; quercetin).</p>                                                                                                                               | <p>Drink as juice or as a side dish (Omar et al., 2017)</p>                                                                                                                                                                                                                                                                                | <p>Wound healer, skin disease, tiredness, body aches, anti-aging material, blood circulation, shrinking channels peranakan, body cooling drinks, cancer, diabetes and mental intelligence (Ahmad et al., 2016)</p> <p>(Respondent 3): He uses <i>pegaga</i> leaves including lemongrass, turmeric, galangal for cooking ingredients that are commonly used in his own family and without realizing that the nutrients contained in plants like this have helped provide internal and external health.</p> |
| <p>Figure 5: Kaduk tree (<i>Piper sarmentosum</i>)</p>                                      | <p>Plants contain constituents such as alkaloids, amides, pyrones, flavonoids (Tuntiwachwut tikul et al., 2006)</p>                                                                                                                                                            | <p>Helps in reducing blood glucose levels in diabetic patients (Pongmarutai, 1969)</p>                                                                                                                                                                                                                                                     | <p>Anti-cancer (Hematpoor, 2018), hypoglycemic (Peungvicha et al., 1998), Panti-tuberculosis. Hussain et al., 2008)</p> <p>(Respondent 4): Leaf <i>kaduk</i> has its own benefits. Also commonly used In food that cooked or as a side dish. This is because, leaves contain height antioxidants.</p>                                                                                                                                                                                                     |

(Self Picture)

antioxidant  
(Subramaniam  
et al., 2003)  
and  
antimalarial  
(Rahman et al.,  
1999)

Already help fight  
Problem cancer  
Including effects  
the cancer.  
Obviously, leaves  
*kaduk* can made  
wrong a way to  
cancer patients.

Figure 6: Galanga  
(*Alpinia galanga* (L.)



(Self Picture)

Flavonoid,  
vitamin E and C  
(Kaneko &  
Baba, 1999)

Function to  
prevent fat from  
peroxidation  
(Kaneko & Baba,  
1999)

Utilized in the  
treatment for  
digestion and a  
quick reliever  
of pain,  
especially  
angina, heart  
attack and gall  
bladder  
attacks and  
effects as a  
reliever of  
heart pain  
(Grieve,  
1971)

(Respondent 5):  
Based on practice  
he related close to  
herbal plants i.e  
turmeric, galangal  
and fragrant  
lemongrass.  
Therefore, he  
indeed trust the  
herbs stated that  
indeed effective for  
helps treat diabetes  
and kidney stones.

Figure 7: Turmeric  
(*Curcuma domestica*  
(Val) atau Syn: *Curcuma*  
*longa*)



(Self Picture)

Turmeric  
contains  
various  
chemical  
compositions  
such as protein,  
fat, minerals,  
carbohydrates  
and water  
content  
(Chattopadhyay  
et al., 2004)

Curcumin is a  
chemical  
compound that  
causes it to  
appear bright  
yellow-orange  
(Ravindran et  
al., 2007)

In addition to its  
role as a  
turmeric spice in  
the kitchen, it  
also plays a role  
in medical  
activities in  
treatment clinics  
(Gupta et al.,  
2013)

Fight obesity,  
inflammation  
cancer,  
diabetes, and  
even arthritis  
(Gryniewicz &  
Slifirski, 2012)  
The benefits of  
turmeric and  
its products are  
based on its  
curcuminoid  
content  
(Revathy et al.,  
2011).  
Effective  
against major  
human  
diseases,  
including  
cancer,  
diabetes and  
irritable bowel  
syndrome  
(Zahar et al.,  
2016)

(Respondent 6):  
Turmeric help to  
treat boils Myself  
using turmeric that  
with how to mix  
and apply  
in part boils By  
that's fine help  
shrink and cure  
boils. Turmeril  
leaves and *semalu*  
leaves mixed with  
salt can stop the  
blood and  
disappear and treat  
the wound.

| Wild herbs                                                       | Content                                                                                                                             | Function                                                                                                                                      | Typeps diseases                                                                                     | Testimony |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------|
| Figure 8: Cinnamon<br>( <i>Cinnamomum</i><br><i>zeylanicum</i> ) | Contains fiber,<br>carbohydrates,<br>energy, iron,<br>calcium,<br>minerals and<br>vitamins C, A, B<br>and E (Gul &<br>Safdar, 2009) | Apart from being<br>used as culinary<br>and medicine,<br>they are used in<br>soaps, lotions,<br>perfumes, home<br>fragrances and<br>hair care | Weight loss,<br>diabetes,<br>cholesterol,<br>ulcers, gastric<br>migraine,<br>lower blood<br>glucose |           |



Garuda (n.d.)

Figure 9: Star anise  
(*Illicium verum*)Source: Garuda Exports  
(2022)

Alkaloids, Phenols, flavonoids, proteins, carbohydrates, antioxidants, minerals, magnesium, zinc, calcium, sodium, fluoride, copper (Madhu et al., 2014)

products (Harian Metro, 2022)

Medicinal and aromatic plants, a gift of nature, are being used against various infections and diseases in the world since ast history (Madhu et al., 2014)

(Ranasinghe &amp; Galappaththy, 2016)

Antimicrobial antifungal, anticancer, anti-allergic (Madhu et al., 2014)

Figure 10: Cloves  
(*Eugenia aromatica*)Source: TribunJatim  
(2022)

Nitrogen, calcium, fat, carbohydrates, protein, copper, iron, alkali, Vitamin A, zinc, minerals and moisture (Umar et al., 2006)

Functions to release aroma, spices in cooking, sweet taste enhancer, making medicines and perfumes (Singletary, 2014)

Diabetes, blood sugar control, blood pressure, treating teeth, kcusis, overcoming plaque and bacteria in the mouth and also eczema (Singletary, 2014)

| Foreign herbs                                                                                                                              | Content                                                                                                                                                                          | Function                                                                                 | Typeps diseases                                                                                   | Testimony                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Figure 11: Black cumin<br>( <i>Nigella Sativa</i> )<br> | Rich in monosaccharid e glucose, xylosa, polysaccharide fatty acid that is not saturated with protein. Carotene, which is a source of vitamin A, calcium, iron (Almatrafi, 2016) | Habbatus Sauda can be used as an alternative medicine or folk medicine (Almatrafi, 2016) | Asthma Colds, Allergic High Blood Pressure, Launching Milk Production, Diabetes (Almatrafi, 2016) | (Respondent 7): I suffered from heart disease, high cholesterol and diabetes, and eating buckwheat, figs and olives has helped me by controlling and giving me internal and physical energy. with care like this has caused blood sugar to drop, including heart attacks and cholesterol has been to some |

Source: Dunia Edy  
(2022)

extent this plant has helped me to live a normal life just like everyone else.

Figure 12: Curry leaves (*Murraya koenigii*)



Source: [SPICEography](#) (n.d.)

Protein, Fat, Carbohydrates, Fiber, Iron, Minerals, Calcium Phosphorus, Carotene, Vitamin C and Nicotinic Acid ([Yurleni & Adriani, 2021](#))

Apart from being used as medicine and nutraceuticals, it functions as a source of antioxidants, ([Bhusal & Thakur, 2021](#))

Help in improving blood circulation, menstrual problems, nausea problems, diabetes because it contains hypoglycaemic action ([Raghavan Uhl, 2000](#))

## 4.1 Analysis of T-test

### 4.1.1. The Difference in the Perception of the Effectiveness of Herbs from Different Gender

T-test was used to determine the difference in the perception towards traditional medicine among different genders. The results are presented in [Table 4](#). The analysis showed that the mean score for both gender groups was 4.53 (male) and 4.34 (female) respectively. There was statistically significant difference with p-value in both genders ( $p < 0.05$ ). It shows that male and female have different perception towards the effectiveness of herbal-based traditional medicine.

Table 4: Analysis of Differences in Perceptions of the Effectiveness of Traditional Medicine Based on Herbal Plants from Different Gender

| Gender | Sample size | Score mean | Statistics t | P value |
|--------|-------------|------------|--------------|---------|
| Male   | 77.3        | 4.53       | 5.203        | 0.023   |
| Female | 58.9        | 4.34       |              |         |

Based on [Table 4](#), more men believed that herbal-based traditional medicine is effective in healthcare as compared to women. In this case, the intake of herbal plants in medicine may help individuals in maintaining their well-being in life.

### 4.1.2. The Difference in the Perception towards Effectiveness of Herbs from Different Age Groups

The ANOVA was used to determine the difference in the perception towards traditional medicine among different age groups. The results are presented in [Table 5](#). It showed that there is statistically significant difference among the different age groups with p-value of 0.049 ( $p < 0.05$ ). This shows that gender groups have different perception towards the effectiveness of herbal-based traditional medicine. The analysis showed that people with age 51-60 and above have the highest mean score (4.52), followed by age 41-50 (4.49),

and age 31-40 (4.46). the lowest mean score was age between 21-30 with the mean score 4.32, It may be due to the fact that the available modern medicine is already enough in treating their health condition. At the same time, most of them maybe has relatively good health condition and hence, their dependency on alternative medicine such as herbal-based medicine is lower. The finding also indicated an increase the age of a person will result in increase in the perception of herbal-based traditional medicine is effective in healthcare.

Table 5: Analysis of Variance (ANOVA) in Responses to the Effectiveness of Traditional Medicine Based on Herbal Plants from Different Age Stages

| Age             | Sample size | Score mean | Statistics f | P Value |
|-----------------|-------------|------------|--------------|---------|
| 25-30           | 79          | 4.32       | 2.644        | 0.049   |
| 31-40           | 63          | 4.46       |              |         |
| 41-50           | 83          | 4.49       |              |         |
| 51-60 and above | 101         | 4.52       |              |         |
|                 |             |            |              |         |

\* The mean difference is significant at the 0.05 level

#### 4.1.3. The Difference in the Perception towards the Effectiveness of Herbs from Different Educational Background

The ANOVA was used to determine the significant difference in the perception towards traditional medicine among different educational backgrounds. The result of the test showed that there is statistically significant difference among the different educational background with p-value of 0.010 ( $p < 0.05$ ). Besides, the mean score for those who have Master is the highest (4.37), followed by PhD (4.20), Degree (4.33), Diploma (4.28), the group of those who did not go to school (4.14) and finally Pre-University recorded the lowest mean score (3.62). These data show that most of those who went to further their study at university level believed in the effectiveness of herbal plants as compared to those who did not. Moreover, those who have higher educational background may have been exposed more to the information related to herbal plants in terms of its benefits and ways of practice. The result of the test is presented in [Table 6](#).

Table 6: Educational Levels of Different Respondents' Backgrounds

| Education status     | Sample size | Score mean | Statistics f | P Value |
|----------------------|-------------|------------|--------------|---------|
| Not attending school | 22          | 4.14       | 3.072        | .010    |
| Pre-Universiti       | 13          | 3.62       |              |         |
| Diploma              | 82          | 4.28       |              |         |
| Degree               | 104         | 4.33       |              |         |
| Master               | 71          | 4.37       |              |         |
| PhD                  | 35          | 4.20       |              |         |
|                      |             |            |              |         |

\* The mean difference is significant at the 0.05 level

#### 4.1.4. The Difference in the Perception towards the Effectiveness of Herbs from Different Occupational Background

To determine the significant difference in the perception towards traditional medicine among different occupational background, ANOVA was used. The result of the test shows that there is statistically significant difference among the different occupational background with p-value of 0.007 ( $p < 0.05$ ). Besides, the group of government sector has

the highest mean score (4.54), followed by self-employed (4.51), private sector (4.44), students (4.33), pensioner (4.16) and unemployed group recorded the lowest mean score (4.00).

These findings show that those who are working maybe more exposed to the information regarding herbs as medicinal plants as compared to those who are not working. In addition, they may also potentially be involved in the discussion among colleagues related to herbal-based medicine that may then instill their believes in this mode of medicine. The result of the test is presented in [Table 7](#).

Table 7: Results of Analysis of Differences in Perceptions of Herbal Plant-Based Efficacy from Different Occupational Classifications

| Class of occupation | Sample size | Score mean | Statistics f | p value |
|---------------------|-------------|------------|--------------|---------|
| Government sector   | 82          | 4.54       | 3.27         | 0.007   |
| Private sector      | 140         | 4.44       |              |         |
| Self-employed       | 41          | 4.51       |              |         |
| Pensioner           | 55          | 4.16       |              |         |
| Unemployed          | 6           | 4.00       |              |         |
| Students            | 3           | 4.33       |              |         |

\* The mean difference is significant at the 0.05 level

#### 4.1.5. The Difference in the Perception towards the Effectiveness of Herbs from Different Status of Household Income

To determine the significant difference in the perception towards traditional medicine among different status of household income, ANOVA is used. The result of the test shows that there is statistically significant difference among the different status of household income with p-value of 0.011 ( $p < 0.05$ ). Besides, the group of household income between RM 3171 to RM 3970 has the highest mean score (4.67), followed by household income between RM 8701 to RM 10,970 (4.63), household income between RM 7101 to RM 8700 (4.50), household income below RM 2500 (4.49), household income between RM 3971 to RM 4850 (4.48), household income between RM 2501 to RM 3170 (4.40), household income between RM 5881 to RM 7100 (4.38) and finally household income between RM 4851 to RM 5881 to RM 7100 (4.20). While the findings are found to be statistically significant, there is no specific trend can be observed in the mean score of the different household income. The result of the test is summarized in [Table 8](#).

Table 8: The Results of the Analysis of Differences in Responses to the Effectiveness of Traditional Medicine Based on Herbal Plants from Different Household Incomes

| Household Incomes   | Sample size | Score mean | Statistics f | p value |
|---------------------|-------------|------------|--------------|---------|
| Below RM2,500       | 37          | 4.49       | 2.651        | 0.011   |
| RM2,501 to RM3,170  | 40          | 4.40       |              |         |
| RM3,171 to RM3,970  | 58          | 4.67       |              |         |
| RM3,971 to RM4,850  | 54          | 4.48       |              |         |
| RM4,851 to RM5,880  | 56          | 4.20       |              |         |
| RM5,881 to RM7,100  | 52          | 4.38       |              |         |
| RM7,101 to RM8,700  | 22          | 4.50       |              |         |
| RM8,701 to RM10,970 | 8           | 4.63       |              |         |

\* The mean difference is significant at the 0.05 level

## 5. Conclusion

In short, this research depicts the different perception of effectiveness towards the use of herbal plants among the community in Selangor state. Based on the findings obtained from the t-Test and ANOVA, there are statistically significant difference towards the perception of effectiveness of herbal-based traditional medicine between the different genders, age groups, educational background, occupational background and household income. Overall, the study's findings revealed that men are more likely than women to use herbs, and the majority of them are between the ages of 51 and 61 or older. The respondents' average household income is between RM3,171 and RM3,970, and majority of them have bachelor's degrees from institutions of higher learning.

## Ethics Approval and Consent to Participate

All procedures carried out in this study that included people were done so with their consent and full acknowledgement, in conformity with all applicable ethical standards.

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The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest with respect to the research, authorship, or publication of this article.

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