

## MALAYSIAN TRADITIONAL MEDICINE: THE USAGE OF MARINE RESOURCES AS A TREATMENT AND COMPLEMENTARY MEDICINE FOR HEART DISEASE

M. A. S. A. Halim<sup>\*</sup>, H. S. Salleh, W. N. Mohamed, N. H. N. Mat and Y. Yusof

School of Maritime Management and Business, Universiti Malaysia Terengganu, 20130 Kuala Nerus, Terengganu, Malaysia

Published online: 10 November 2017

### ABSTRACT

The objective of this study is to systematically identify the important marine resources used for producing traditional medicine for heart disease in Malaysia. To achieve the objective of this study, a qualitative method was employed through in-depth face-to-face interviews using a prepared questionnaire. The results indicate that twelve types of marine resources are used for producing traditional medicine for treating heart disease. Furthermore, the results also indicate that some of the marine resources are used as a food as well as to treat heart disease. Finally, the findings of this study will help demystify traditional medical practices in Malaysia and assist academicians in understanding the Malaysian culture of traditional medicine.

**Keywords:** Marine resources; heart disease; traditional medicine; marine materials; complementary medicine.

Author Correspondence, e-mail: [abi.sofian@umt.edu.my](mailto:abi.sofian@umt.edu.my)

doi: <http://dx.doi.org/10.4314/jfas.v9i6s.61>

### 1. INTRODUCTION

In Malaysia, the indigenous systems of medicines have been developed and have attracted a high level of public interest due to the potential growth of different kinds of complementary



therapies. However, although traditional medicine has been used by former generations based on experience to prevent, treat, manage illnesses, and preserve the mental and physical states of locals, modern and conventional scientific medicine practitioners have avoided its use in their treatment regime due to the lack of scientific evidence. Nevertheless, nowadays, traditional medicines are becoming increasingly popular for a number of reasons that have been discussed by medical scientists, pharmaceutical specialists and traditional therapists. These include usage by indigenous populations as part of a holistic system with few side effects. They are also evolving as evidence-based medicine, the ethno-medical knowledge of which is applicable to modern medical treatment.

Moreover, some modern and conventional scientific medicine practitioners have discussed the importance of marine resources in treating patients who are facing heart disease. According to [8], marine resources especially marine invertebrates which possess healing properties against various illnesses including heart disease, have been used in traditional medicine. However, few researchers or higher learning institutions have explored the available knowledge or information concerning traditional medicine for the treatment of heart disease from marine resources [5].

## **2. BACKGROUND OF STUDY**

Fundamentally, traditional medicine is a comprehensive term that refers to forms of medicine that are long-established in Malaysia and other countries in Southeast Asia. According to [4], Malaysia is one of the countries in Asia in which the practice of utilizing traditional and complementary medicine is growing rapidly. In addition, India and China are considered to be countries that have historically practiced the usage of plants for producing therapeutic remedies. In India, traditional medicine dates back to 1600 to 3500 B.C., while in China, it has been used in natural herbal preparations for medicines since 4000-5000 B.C. In addition, the properties and therapeutic uses of medicinal plants have been studied in detail and recorded empirically by ancient physicians and constitute the basic foundation of ancient medical science in India [12]. Nowadays, Southeast Asia is becoming increasingly aware of the importance of medicinal plants for producing resources for traditional medicines as has been practiced in India and China [14]. As mentioned by [1], traditional medicine is becoming

more popular for a certain group of patients as a form of complementary treatment for supporting conventional treatment. Therefore, marine resources can be considered to be sources of traditional medicine that are suitable for use as a complementary medicine for treating heart disease.

In [18] classified traditional medicine as diverse health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises applied singularly or in combination to maintain wellbeing as well as to treat, diagnose or prevent illness. In Malaysia, traditional medicine has become part of the culture for maintaining one's health at a lower cost. According to [15], one of the reasons why patients in rural areas currently use traditional medicine is because of the lower income among this population. For the poor communities in rural areas, the cost of payment for traditional medicine has remained more affordable and is often more easily accessible as a source of treatment in the primary healthcare system compared to conventional treatment [14]. Consequently, traditional medicine has become common practice for the treatment of disease especially among the Malay, Indian, Chinese and other aboriginal communities in Malaysia.

### **3. TRADITIONAL MEDICINE FROM MARINE RESOURCES IN MALAYSIA**

Malaysia has a long coastline of approximately 4,675 km and is the 29th longest coastline in the world. Thus, marine resources play an integral part in Malaysian daily life as a source of food and, more importantly for medicinal purposes. A number of social studies has found that those communities living in the coastal areas of Malaysia are often fishermen who totally depend on the marine resources, such as catching fish, shrimps, crabs, shells and other sources to earn their income [7, 9]. In addition, some fishermen also look for other marine resources to supply traditional medicine such as seahorse; sea urchin (thorn); sea cucumber; *Amplexidiscus fenestrafer*, also known as Boreang; golden sea cucumber, local name "Teripang"; seaweed and golden pomfret. Nowadays, traditional medicine is considered to be a form of marine resource that contributes to the local social economy as well as being increasingly crucial to the healthcare system in Malaysia. The activity of coastal communities in capturing marine resources has had a positive effect on the income of fishermen. In addition to the opportunities for fishermen, in [6] mentioned that in terms of local demand,

---

Malaysians are estimated to spend USD500 million annually on traditional therapies. In the context of international demand, the World Health Organization reported that medicinal plants and herbs remain highly sort after for traditional medicine to treat various illnesses [2].

#### **4. LITERATURE REVIEW**

In marine biology, plant, animal and mineral substances are considered to be genetic resources that are used by communities to treat and promote healthcare, especially as a medicine for heart disease. As mentioned by [10], heart disease has become a major illness among the population in the United States and is a leading cause of death. Although the causes and prevention of heart disease have been studied for many years, new information is emerging. According to [6], the Malaysian government allocates considerable money for developing a system of healthcare using traditional therapies. In addition, the Malaysian government through the Ministry of Health has attempted to conform to the statement of the World Health Organization that emphasizes that medicinal plants and herbs remain the most important documented sources of traditional medicine [3] to treat various illnesses.

Similar to other undeveloped and developing countries, traditional medicine [13] is considered to be a crucial part of the healthcare system in Malaysia. In [10] highlighted that marine resources are used to complement conventional medicine. Nowadays, due to the lack of scientific evidence, these resources have received increasing attention from modern and conventional scientific medicine practitioners to prevent, treat, manage illnesses and preserve the mental and physical states of the local peoples. Additionally, in depth studies regarding the importance of the biology of marine resources to support conventional medicine have become increasingly popular among researchers and academicians. To date, there is a serious lack of documented use of local marine resources as traditional medicine [16] to treat various illnesses. The ethno-based knowledge and experience-based knowledge concerning the use of marine resources in traditional medicine is pivotal, as it forms an important basis for modern science to investigate the potential bioactive compounds that can be developed as drugs for therapeutic intervention against identified diseases [8].

---

## 5. PROBLEM STATEMENT

Although medical scientist and pharmaceutical specialists have achieved highly significant results from the modern studying and conventional scientific medicine, however, the traditional medicine for heart disease is still requires scientific evidence for the treatment of patients, to prevent and to manage illnesses. In addition, systematic data and documented evidence concerning the marine invertebrates used in traditional medicine for the treatment of heart disease is lacking. Even though, it is important to form a basis for modern science to investigate the potential bioactive compounds that can be developed for therapeutic intervention against various diseases including heart disease, proper and systematic documentation concerning the ethno and experience based knowledge pertaining to the use of marine invertebrates in traditional medicine is poor. In terms of policy development, some countries face major challenges in the development and implementation, as well as the regulation of traditional medicine. These challenges are related to regulatory status, assessment of safety and efficacy, quality control, safety monitoring, and lack of knowledge about traditional medicine within national bodies and regulatory authorities [19]. Even now, Malaysian medical scientists and pharmaceutical specialists have a problem using the new technology to study marine biology which includes substances from marine resources as a treatment or complement to conventional medicine.

## 6. RESEARCH QUESTION AND OBJECTIVE

In terms of the study problem, in [11, 17] have claimed that a scientific approach to the use of traditional medicine that contains marine resources is crucial for treating patients with heart disease. Accordingly, the research question is: what marine resources are used in traditional medicine or as a complement to the use of conventional medicine for the treatment of heart disease? Furthermore, based on the research question, the objective of this study is to identify those marine sources that are used as a material in traditional medicine for the treatment of heart disease in Malaysia or as a complement to the use of conventional medicine.

---

## **7. METHODOLOGY**

### **7.1. Study Area**

In general, the focus of this study is on the coastal areas of Peninsular Malaysia. A total of 31 interviews were conducted involving four states: Terengganu, Pahang, Penang and Kedah. The participants for this study were randomly selected from the local community of the coastal areas including traditional practitioners and those who were involved in marine activities such as fishermen, local people and patients.

### **7.2. Data Collection**

Since this study aimed to investigate the market of marine resources in the traditional medicine for heart disease, a qualitative method was used through in-depth face-to-face interviews by means of a prepared questionnaire. To obtain the necessary information based on the respondents' experiences, views and opinions, open-ended questions were employed. Open-ended questions were considered crucial for this study to explore and gather adequate information regarding traditional medicine based on the respondents' own experiences and knowledge. Furthermore, questions were developed based on the literature review and opinions of medical experts. However, the researcher consistently asked for relevant information to encourage the participants to provide detailed information and to gather new knowledge from the respondents. To identify respondents for this study, the snowball method was employed.

### **7.3. Analysis**

In addition to recording the interviews, the researcher took notes to assist with the subsequent analysis of the transcripts. Tape recordings of the interviews were transcribed by the researcher into a Microsoft (MS) Word document. The notes taken during the interviews were also added to the document to gain a complete picture for each interview. Furthermore, descriptive analysis was employed to identify the data according to the research questions.

## **8. RESULTS AND DISCUSSION**

As discussed in the literature review, most previous scholars, practitioners and patients were concerned with the effectiveness of traditional medicine and its use in any treatment especially those treatments that used marine resources. Hence, the objective of this study was

to identify the marine sources used by the coastal communities in Malaysia as a material for producing traditional medicine for the treatment of heart disease. To achieve the objective of this study, a qualitative study was conducted in which 91 respondents who were actively involved as practitioners in traditional medicine were interviewed. These included fishermen, sellers and traditional pharmaceutical specialists. Furthermore, this research studied two sub-topics: profiling of respondents, and marine resources as material in traditional medicine for the treatment of heart disease.

### **8.1. The Profiling of Respondents**

Four states in Malaysia were chosen as the sample in this study for the interviews with 91 respondents who were actively in traditional medicine for the treatment of heart disease. All of the respondents were selected from the States of Terengganu, Pahang, Langkawi Kedah and Penang. In terms of the frequency and percentage study, the results for the study sample show that Penang was the state with the most respondents, 36.2% (33 respondents) which engaged in traditional medicine. This was followed by Langkawi, Kedah with 27.5% (25 respondents); Terengganu 22.0% (20 respondents) and Pahang with only 14.3% or 13 respondents. The results indicate that most of the fishermen and sellers in the north of Peninsular Malaysia are more highly aware of the importance of traditional medicine for the treatment of heart disease (63.7%) than their counterparts along East Coast, Malaysia, (36.3%). This table also indicates that most of the respondents from the north of Peninsular Malaysia are Chinese who conduct a business in traditional medicine. As mentioned by [6], these results imply that some of the coastal communities in Malaysia are aware of the crucial need for traditional medicine in the healthcare system, especially the coastal communities in the north of Peninsular Malaysia.

Furthermore, this study analysis the cross-tabulation of the state and age of the respondents. This analysis divided the respondents into three age groups: those less than 40 years old, those aged between 41 and 60 years old and those older than 61 years of age. The results indicate that most are from the age group between 41 and 60 years old (62.2%), followed by those who are above 61 years (29.7%) and only 7.7% are aged less than 40 years old. In terms of cross-tabulation analysis, the results indicate that those respondents from Penang who are aged between 41 and 60 years old are the largest group in the sample with 23 respondents

(25.2%). This is followed by the respondents from Langkawi (15.4%) and Terengganu (13.2%). There are 9 respondents in the group aged 61 years and above from Langkawi. This study also indicates that the results of cross-tabulation show that the group of respondents who are below 40 years old have the lowest involvement from each state with only 2.2% from Terengganu and Langkawi, and 3.3% from Penang. A possible reason for the results is that most young people are not interested in the traditional treatment of heart disease. Otherwise, most of the adults are aware of the effectiveness of traditional medicine for the treatment of heart disease. As discussed by [1], traditional medicine is crucial for some adult patients who have heart disease, as well as for a complementary treatment to support conventional treatment.

## **8.2. Marine Resources as Material in Traditional Medicine for the Treatment of Heart Disease**

In term of traditional treatment, ten marine resources that are used by coastal communities to treat heart disease were identified: seahorse, sea urchin (thorn), sea cucumber, shark (fin), dolphin (liver), sea perch, boreang, teripang, seaweed and golden pomfret. In traditional treatment, the results indicate that sea cucumber (31.25%) has the highest usage compared to other marine resources with sea perch having the second highest usage (25%) in traditional treatment. However, other resources are not used as often by local communities to treat heart disease. As discussed in the literature, this result supports the previous studies of [11, 17] who mentioned that a number of substances from marine resources have been used by coastal communities to treat diseases in Malaysia such as seahorse, sea urchin (thorn), sea cucumber, shark (fin), dolphin (liver), sea perch, seaweed and golden pomfret.

Furthermore, Table 1 highlights the reasons and benefits of six marine resources for treating heart disease in Malaysia. According to 91 respondents, many marine resources have numerous benefits, and most resources are very nutritious such as golden pomfret, seaweed, sea perch, and sea cucumber.



**Table 1.** The usage of marine resources-heart disease

Marine Resource	Reason
Seahorse	Efficacious, many benefits
Sea cucumber	Found mainly in Langkawi, a lot of nutrients
Teripang	Found mainly in Langkawi, properties similar to the properties of cucumber
Sea perch fish	Nutritious but hard to get
Seaweed	Tasty and nutritious
Golden pomfret	Very good for the heart and nutritious

To use the marine resources in traditional treatment, the respondents indicate that each of the resources has its own process for making the medicine to treat heart disease. Table 2 shows that three out of ten marine resources are used by making a soup, such as dolphin, amplexidiscusfenestrafer (Boreang) or golden sea cucumber (Teripang), while the sea perch and seahorse are used by drying and grinding into a powder.

**Table 2.** The process for using marine resources in traditional medicine for the treatment of heart disease

Marine Resource	Process
Sea Urchin (thorn)	Dressed with boiling rice water and drunk
Shark (fin)	Boiled / made into soup
Dolphin (Liver)	Boiled for soup
Seahorse	Dried, fried dried, crushed to make a powder
Boreang	Stew, make soup or salad
Sea perch	Fried dried, ground to make powder
Teripang	Make soup
Seaweed	Cooked until melted
Golden pomfret	Eaten raw
Sea cucumber	Make soup with water, dried, or mixed with cucumber, water stingless bee honey and egg yolk from free-range chickens

## 9. CONCLUSION

Nowadays, marine resources are crucial and essential for traditional medicine as a complementary treatment for heart disease in Malaysia. In summary, the results of this qualitative method reveal that most of the respondents are aware of the importance of marine resources in traditional medicine as an alternative to modern treatment. In fact, some of them declare that traditional medicine is also vital as a complementary treatment conventional treatment. As the objective of this study is to identify the marine sources used as a material in the treatment of heart disease or as complementary medicine to conventional treatment, the results indicate that ten marine resources are used by adults in Malaysia as treatment or as a complementary medicine for the treatment of heart disease. These are seahorse, sea urchin (thorn), sea cucumber, shark (fin), dolphin (liver), sea perch, seaweed and golden pomfret. According to the results of this study, most of the marine resources used in the treatment of heart disease, are normally used by making a soup for dietary purposes or as a powder to use when they bathe. The findings of this exploratory study are important as they provide preliminary information that is beneficial to the Ministry of Health Malaysia for developing a policy relating to the regulatory status, safety and quality control of traditional medicine that can add the value for a modern and conventional treatment.

## 10. ACKNOWLEDGEMENTS

This research was supported by Trans-Disciplinary Research Grant Scheme (TRGS: 59421, 2016-2019) from the Ministry of Higher Education, Malaysia.

## 11. REFERENCES

- [1] Abuduli M, Ezat S, Aljunid S. Peranan perubatan tradisional dan komplementari di universal perlindungan. *Malaysian Journal of Medicine Kesihatan Awam*, 2011, 11(2):1-5
- [2] Alsarhan A, Sultana N, Al-Khatib A, Kadir M R. Review on some Malaysian traditional medicinal plants with therapeutic properties. *Journal of Basic and Applied Sciences*, 2014, 10:149-159
- [3] Center for the Study of Religion and Culture. Use of traditional vs. orthodox medicine in help-seeking behavior for psychiatric disorders in Nigeria. Summer fellowship report, 2005

- 
- [4] Mui L D C, Adeline T, Norazah M S. The prevalence of traditional and complementary medicine usage in Sabah, Malaysia. In 6th International Conference on Business and Economics Research, 2015, pp. 1-15
- [5] Chatterji A, Zaleha K, Anuar H, Therawath A, Faizah S. Marine living resources in the practice of traditional medicine. *Journal Coastal Environment*, 2010, 1(1):41-52
- [6] Farooqui M. The current situation and future direction of traditional and complementary medicine in Malaysian Health Care System. *Alternative and Integrative Medicine*, 2013, 1(1):1
- [7] Islam G M, Yew T S, Noh K M, Noh A F. Community's perspectives towards marine protected area in Perhentian Marine Park, Malaysia. *Open Journal of Marine Science*, 2014, 4(2):51-60
- [8] Gerwick W H, Moore B S. Lessons from the past and charting the future of marine natural products drug discovery and chemical biology. *Chemistry and Biology*, 2012, 19(1):85-98
- [9] Siry H Y. Decentralized coastal zone management in Malaysia and Indonesia: A comparative perspective 1. *Coastal Management*, 2006, 34(3):267-285
- [10] Kelley D. Heart disease: Causes, prevention, and current research. *JCCC Honors Journal*, 2014, 5(2):1-13
- [11] Kris-Etherton P M, Harris W S, Appel L J. Fish consumption, fish oil, omega-3 fatty acids, and cardiovascular disease. *Arteriosclerosis, Thrombosis, and Vascular Biology*, 2003, 23(2):20-30
- [12] Prakash P, Gupta N. Therapeutic uses of *Ocimum sanctum* Linn (Tulsi) with a note on eugenol and its pharmacological actions: A short review. *Indian Journal of Physiology and Pharmacology*, 2005, 49(2):125-131
- [13] Abbott R. Documenting traditional medical knowledge. Geneva: World Intellectual Property Organization, 2014
- [14] Hosseinzadeh S, Jafarikukhdan A, Hosseini A, Armand R. The application of medicinal plants in traditional and modern medicine: A review of *Thymus vulgaris*. *International Journal of Clinical Medicine*, 2015, 6(09):635-642
- [15] Stanifer J W, Patel U D, Karia F, Thielman N, Maro V, Shimbi D, Kilaweh H, Lazaro M, Matemu O, Omolo J, Boyd D. The determinants of traditional medicine use in Northern Tanzania: A mixed-methods study. *Plos One*, 2015, 10(4):1-17

- 
- [16] Borokini T I, Lawal I O. Traditional medicine practices among the Yoruba people of Nigeria: A historical perspective. *Journal of Medicinal Plants*, 2014, 2(6):20-33
- [17] Vecchione A. Prospects and challenges in monitoring the seahorse population of South Carolina, USA. *Journal of Marine Animals and Their Ecology*, 2013, 6(2):6-11
- [18] World Health Organization (WHO). National policy on traditional medicine and regulation of herbal medicines. Geneva: WHO, 2005
- [19] World Health Organization (WHO). Essential medicines and health products information portal-A world health organization resource. Geneva: WHO, 2005

**How to cite this article:**

Halim M A S A, Salleh H S, Mohamed W N, Mat N H N, Yusof Y. Malaysian traditional medicine: the usage of marine resources as a treatment and complementary medicine for heart disease. *J. Fundam. Appl. Sci.*, 2017, 9(6S), 816-827.