



**INCIDENCE OF PARTHENIUM ALLERGY ON HUMAN HEALTH IN KEDAH,
MALAYSIA**

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ABSTRACT

The most invasive and environment pollutant weed, *Parthenium hysterophorus* L. has been spreading fast in Kedah, Malaysia causing multiple problems to the inhabitants. A case study was conducted to investigate the impacts of parthenium weed (Rumpai Miang Mexico) on human health in Sungai Petani, Kedah. Data were collected from 100 respondents of five villages by face-to-face interview using early prepared questionnaire in July 2016. A GPS was used to record the geographical position of the survey areas. Information on health problems due to contact with parthenium weed was collected, which were analyzed properly to have valid conclusion. Five cases, one from Kampung Haji Ngah (N 05^o44'02.5"E 100^o31'02.2"), three from Kampung Bukit, Sungai Pasir (N: 05^o36'52.6" E: 100^o27'25.6") and one from Kampung Teluk, Jalan Sg. Jagung (N: 05^o39'14.9" E: 100^o27'7.91") were recorded where people were affected with allergic reactions including reddening on skin, swells on hands, arms and face, itching and eczema on their hands, palms and faces due to contact with the parthenium weed. While they were removing the weeds with their bare hands and without mask this kind of effects were happened to their body. Detailed laboratory tests on laboratory animals following the

ethical guidelines of the International Association for the Study of Pain should be conducted to reconfirm the allergic reactions.

Keywords: Parthenium allergy, Rumpai Miang Mexico, Ill impacts on health, Parthenium invasion

INTRODUCTION

Parthenium weed (*Parthenium hysterophorus* L., Asteraceae) is the most invasive and problematic weed on the planet causing problems in crop production, animal production, biodiversity and human health, especially in India and Australia [1], [2]. The weed invaded many countries including Pakistan, Bangladesh, Malaysia, Nepal, Sri Lanka, Vietnam, Tanzania, Kenya, Ethiopia etc. Recent detection of the weed in Malaysia in 2013 made the higher authority of the country concerned about the issue. However,

proper management strategies have not yet been implemented in the country and the peoples are getting infected with allergic diseases due to improper handling of the plant. The weed is spreading fast to new areas in Kedah (Figs. 1 to 4). This study focuses on the health problems faced by the inhabitants of the parthenium infested areas of Kedah with a view to make the concerned authority responsive and alert about the emerging issue for taking immediate measure to solve the problem.



Fig. 1. Parthenium infesting the home garden



Fig. 2. Parthenium infesting Okra field



Fig. 3. Parthenium in Muslim cemetery



Fig. 4. Parthenium in banana plantation

METHODOLOGY

Study area: The study was conducted in Sungai Petani of the state of Kedah, Malaysia (Fig. 5) during July 2016.

Data Collection

Five villages, namely Kampung (Kg.) Teluk, Kg. Sungai Tok Rawang, Kg. Kongsi 6, Kg. Bukit, and Kg. Haji Ngah of Kedah were selected from the results of previous survey [3]. The peoples living around the parthenium infested area of the marked villages were selected randomly. Face-to-

face interview was taken from 100 respondents using early prepared questionnaire to collect the data on health problems they have faced and the treatments they have used to solve the problems. Some other questions related to invasion of parthenium in Kedah and actions taken to control the weed were also collected. A GPS was used to record geographical positions of the surveyed areas. Important and informative photographs were taken during the interview.

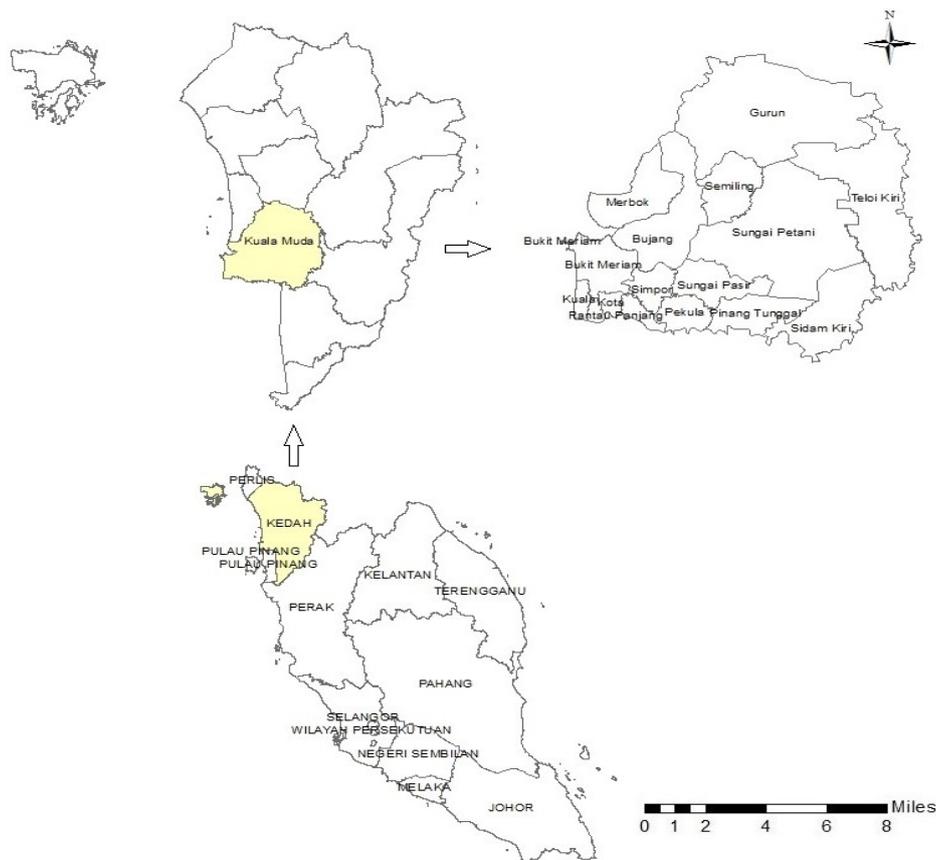


Fig. 5. Map of study area in Kedah, Malaysia

RESULTS AND DISCUSSION

The respondents were interrogated for their opinions on some issues of parthenium weed

invasion in the survey sites as per procedure of Seta *et al.* 2013 [4], and Worku 2010 [5].

Table 1: Responses of the people of Kg. Teluk (A), Kg. Sg. Tok Rawang (B), Kg. Kongsi 6 (C), Kg. Bukit(D), and Kg. Haji Ngah(E) on parthenium weed and its impacts on human health.

Questions asked	Opinions	Villages surveyed					Total	%
		A	B	C	D	E		
1. Do you know the parthenium weed?	Yes	17	16	17	13	14	77	77.00
	No	3	4	3	7	6	23	23.00
	Total	20	20	20	20	20	100	100.00
The questions were continued to the respondents who knew about parthenium weed								
2. Can you indicate if it looks like to any other weed?	Yes	11	15	14	13	12	65	84.42
	No	6	1	3	0	2	12	15.58
	Total	17	16	17	13	14	77	100.00
3. When you have seen the plant first?	i) 2 years ago	10	7	3	5	0	25	32.47
	ii) 3-5 years ago	7	6	6	5	8	32	41.56
	iii) More than 5 years	0	3	8	3	6	20	25.97
	Total	17	16	17	13	14	77	100.00
4. Have you seen the plant in any other place?	Yes	12	8	11	7	7	45	58.44
	No	5	8	6	6	7	32	41.56
	Total	17	16	17	13	14	77	100.00
5. Have you seen any bad impact on human health?	Yes	0	3	0	4	0	7	9.09
	No	17	13	17	9	14	70	90.91
	Total	17	16	17	13	14	77	100.00
The questions were continued to the respondents who experienced some bad impacts of parthenium weed on their health								
6. What problem you have faced?	i) Reddening on skin	0	0	0	1	0	1	14.29
	ii) Swells on hands, arms, and face	1	0	0	0	0	1	14.29
	iii) Itching and eczema on hand or body skin	0	2	0	2	1	5	71.43
	Total	1	2	0	3	1	7	100.00
7. What actions you have taken to solve the problems?	i) See doctor	1	0	0	2	0	3	42.86
	ii) Applying cream/herbal oil	0	2	0	0	1	3	42.86
	iii) Other treatment	0	0	0	1	0	1	14.29
	Total	1	2	0	3	1	7	100.00

The questions asked to the respondents are narrated in Table 1. The questions mainly focused on bad impact of parthenium weed

on human health and the awareness about parthenium invasion.

There were 77 respondents out of 100 who knew about parthenium weed (Table 1). Most

of the respondents (84.42%) could identify the parthenium weed from other weeds as it infested their house garden. This invasive weed was believed to be infested the areas more than five years ago at all the study sites except the Gurun sub-district, where most of the people responded that it appeared in the area 2 to 5 years ago. More than 58% of the respondents saw the weed to infest at other places.

There are 9.09% respondents who suffered from parthenium allergy as the weed was around their residence and they had usual frequent contacts with the plant. Among the victims, 71.43% had symptoms of itching and eczema on their hands or body skin. About 15% recorded reddening on skin and swells on hands, arms, and face. Most of the victims (85%) got treatments from the doctors and they applied an anti-allergic cream or herbal oil. Whereas more than 14%

of the victims have applied lukewarm water as a treatment.

The respondents suffered from parthenium weed allergy as they used their bare hands and without any protective device to remove the parthenium weed. At the beginning they were unaware about the bad effects of this plant but while the personnel of the Department of Agriculture (DOA) distributed the posters and brochures on the dangerous effects of parthenium weed, they understood the reason of the problem.

The ill impact of parthenium weed on human health in Kedah has also been reported in the daily news *The Star* [6]. The CABI international organization also recorded the allergic effects of parthenium weed on the hands of a person (Mr. Hashem, 63 yr.) in Johor, who uprooted the plants using no protective device on his hands (Fig. 6).



Fig. 6. Allergic effect of parthenium weeds on the hand of Mr. Hashem (Johor, Malaysia)

Table 2: The peoples suffered with parthenium allergy on their health at Sungai Petani, Kedah

Respondents	Name	Age (Yr.)	Gender	Sub-district	Control measure adopted (Yes/No)	Action taken to control Parthenium
1	Mr. Mohammad Zain	64	Male	Sungai Pasir	Yes	Spraying herbicide and hand weeding
2	Mrs. Normah	58	Female	Sungai Pasir	Yes	Spraying herbicide
3	Mrs. SitiAsak	65	Female	Sungai Pasir	Yes	Uprooting
4	Mr. Abdul Rani	61	Male	Sungai Pasir	Yes	Hand weeding
5	Mr. Ismail Abdullah	67	Male	Semeling	Yes	Uprooting
6	Mrs. Rosyimah	60	Female	Semeling	Yes	No action taken
7	Mrs. Letchmi	46	Female	Semeling	Yes	No action taken

Some informative dialogues and statements of the parthenium allergy victims are mentioned below to have the idea about the impact of the weed on human health at Kedah.

Mr. Mohammad Zain (64 yr.) (from Kampung Teluk, Jalan Sungai Jagung, Sungai Pasir) stated that, "I got sufferings on my hand because of parthenium weed while I was doing uprooting activity". His hand was swollen and it was burst after two weeks finally causing white scars on hand (Fig. 7). He was cured after following a doctor's suggestions.

Mrs. Normah, (58 yr.) (from Kampung Bukit, Sungai Pasir) suffered due to parthenium weed as it was densely populated surrounding her house. The pollens of the parthenium flowers might touch her sweat body and as a consequence her whole body

got itchiness. She was cured by taking an injection from a doctor. Her husband still didn't know the appropriate method to kill the parthenium weed.

Mrs. Siti Asak, (65 yr.) (from Kampung Bukit, Sungai Pasir) suffered from itchiness on her hand after uprooting of parthenium weed plant. She was cured by soaking her hands in lukewarm of water for a few minutes.

Mr. Abdul Rani, (61 yr.) (from Kampung Bukit, Sungai Pasir) got allergic effect on his hands and face because of parthenium weed. The weed was densely populated in front of his house. His face and hand got itchiness for a few days. He solved it by using a cream provided by a doctor.

Mr. Ismail Abdullah, (67 yr.) (from Kampung Haji Ngah, Semeling) clarified that parthenium weed gave allergic effects on his

hands. It happened during uprooting activity of parthenium weed (Fig. 8). He also got cured by applying an anti-allergic cream and herbal oil.

Mrs. Rosyimah (60 yr.) (from Taman Sejahtera Rakyat) informed to the members of Parthenium Weed Research Group that parthenium caused itchiness on hands once she touched it. Her cat also got some allergic effect on its body as parthenium weed was



Fig. 7 Allergic effect on hand of M. Zain
All these statements indicate that the people of the parthenium infested area of Kedah are in danger of parthenium allergy, which needs to take immediate action to solve the problem. First of all the parthenium infested areas should be marked as protected area, the people should provide with proper training to educate and aware them about the parthenium allergy. Regular radio and TV broadcasting programs on parthenium hazards should be initiated.

profusely grown around her house garden. She applied a cream and herbal oil as treatment.

Mrs. Letchmi (46 yr.) (from Kampung Tok Rawang, Semeling) also got suffering from parthenium having itching effects and eczema on hand. She was cured by using anti-allergic cream and herbal oil. She controlled the weed by spraying the herbicides.



Fig. 8 Allergic effect on hand of Ismail Abdullah

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