

Evaluation of Advertisements Regarding Aphrodisiac Herbal Products in Selected Online Shopping Platforms

Saidatu Hajar Izam Mohd Mukhtar¹, Chia Wei Phan², Syireen Alwi¹, Noorasyikin Shamsuddin^{1,*}

¹Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmacy, Universiti Malaya, Jln Profesor Diraja Ungku Aziz, Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur, MALAYSIA.

²Department of Pharmaceutical Life Sciences, Faculty of Pharmacy, Universiti Malaya, Jln Profesor Diraja Ungku Aziz, Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur, MALAYSIA.

ABSTRACT

Background: Aphrodisiac is a substance used to treat sexual dysfunction and boost performance in sexual activity. Aphrodisiac Herbal Products (AHP) was associated with numerous safety issues. The internet has become a pivotal source of health information and platform for purchasing AHP these days. There is already a regulation in place for the advertisement of herbal products; however, the implementation of the regulation is yet to be investigated. **Materials and Methods:** This study aimed to evaluate the type of information provided in the online advertisements selling AHP and to determine the type of infringements to the local advertising guidelines. An internet search using the local term for AHP was conducted on the largest search engine (www.Google.com). Descriptive analysis was performed on all data. **Results:** A total of 101 advertisements were included in the assessment. The most common active ingredients of products advertised were *Eurycoma longifolia* (Tongkat Ali) (16.2%), followed by *Uncaria gambir* (Gambir Sarawak) (15.8%) and *Tribulus terrestris* (Tribulus) (6.1%). Most products are from external use (53.5%) and are presented in the form of liquid (34.7%), gel (18.8%) and cream/lotion (5%). All the advertisements included in the study infringed the local advertising guidelines such as the absence of an approval number, including substantiation of the claim and statement of guaranteed safety. The highest product claim stated in the advertisement is "to boost stamina in sexual activity" (26.2%) and "to increase penile size and hardness" (21.5%). **Conclusion:** The study highlights the urgent need for the authority to impose more stringent control on the advertising and selling of AHP which may cause harmful consequences to the public. Healthcare professionals should also play their role in educating the public and raising awareness of the safety issues related to the use of AHP.

Keywords: Aphrodisiac, Herbal products, Men's health, Malaysia, Online shopping, Sex enhancement products, Web advertisement.

Correspondence:

Dr. Noorasyikin Shamsuddin

Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmacy, Universiti Malaya, Jln Profesor Diraja Ungku Aziz, 50603 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur, MALAYSIA.
Email: noorasyikin@um.edu.my

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INTRODUCTION

More than 150 million people suffer from sexual dysfunction worldwide and the figure is expected to rise to 322 million by 2025.¹ The word 'aphrodisiac' is derived from the name of Aphrodite, the Greek goddess of love.² It carries the meaning of increasing sexual instinct and sparking sexual desires. In the modern era, aphrodisiac is more likely referred to as a substance that can cure sexual dysfunction and boost strength in sexual activity.³ Aphrodisiacs can be classified into three types based on the modes of action, i.e. increasing libido, potency, or sexual pleasure.³ With the increasing incidence of sexual dysfunction

among males, many of them are turning to aphrodisiac products for a hopeful solution.

The Malaysian Ministry of Natural Resources and Environment predicted that the herbal market industry will grow by 15% each year, from RM 7 billion in 2010 to RM 29 billion in 2020.⁴ Some of the well-known examples of natural aphrodisiacs are herbs such as maca, *Tribulus terrestris*, *Ginkgo biloba*, red ginseng, fenugreek, pistachio nuts and saffron. A study by Srivatsav *et al.* stated that Tongkat Ali, ginseng, horny goat weed, *Tribulus terrestris* and maca are among the common natural ingredients used in the development of Aphrodisiac Herbal Products (AHP).⁵ AHP can be prepared in various forms, including cigarettes, tea, incense, pills, spices, meals, gel, lotion and oil.⁶ Some studies have reported the effectiveness of certain AHP. In the study by Younis and Mohammed *et al.*, natural food such as saffron, ginseng, cinnamon, ginger, garlic, oysters, fruits and chocolate can act as an aphrodisiac agent.⁷ More recently, a study from Hess and Boehmer detected aphrodisiac properties that can boost



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libido in certain plant- or animal-based species, for example, protodioscin-containing plants (fenugreek and Dioscorea), sperm whale (ambrein), Bufo toad, Spanish fly (Cantharides), horny goat weed and Muira puama (potency wood).⁸

At the same time, the advent of the internet globally has facilitated the development of successful marketing techniques by many manufacturers and marketers of herbal supplements and traditional remedies.⁹ A study by Ismail *et al.* reported that an estimated 76.9% of Malaysians used the Internet in 2016 with the majority of them looking for health information online (86.9%).⁹ More than three-quarters (77.2%) of them relied on the Internet for information. In addition, social media is playing an increasingly important role in boosting user satisfaction as a platform for supplying information, providing alternative evaluation, exchanging opinions between consumers and allowing them time to decide before purchasing a product.¹⁰ Konar *et al.*, reported that social media marketing had a significant impact on consumers' purchasing decisions in Malaysia.¹¹ On another note, Aldin *et al.*, found that many respondents favoured herbal products because of their perceived safety.¹⁰ Furthermore, 61.3% of the respondents reported that social media celebrities had influenced them to switch from chemical synthetic (organic) to herbal cosmetics. In short, decision-making among online shoppers is heavily influenced by online review sites and social media, both of which have become crucial sources of information.¹²

Supplying the right information in pharmaceutical advertisements is important to provide accurate facts to consumers on possible remedies for their conditions. This empowers them to make wise decisions so that early diagnosis and treatment of their conditions can be undertaken upon consulting healthcare professionals.¹³ However, very often the commercial content surrounding these products can be biased and misleading, thus resulting in poor decision-making and undesirable medical complications. In Malaysia, before the advertisement can be released to the public, it must first receive clearance from the Medicine Advertisements Board (MAB) of the Ministry of Health (MOH).⁹ Publishing advertisements with medical claims without approval from MAB is outlawed.¹³ However, it remains one of the most popular violations under the Medicines (Advertisement and Sale) Act 1956.⁹

The problematic use of unregistered sex enhancement products is high in many countries. In the United States, it has become the main concern of the Food and Drug Administration (FDA) due to the many severe side effects reported among consumers.¹⁴ To make matter worse, the online sale of AHP added even more safety problems. Some of the herbal medicine or Chinese Traditional Patent Medicine (CTPMs) marketed as natural health products have been found to contain active chemical ingredients such as synthetic Phosphodiesterase type 5 Enzyme (PDE-5) inhibitors (sildenafil, tadalafil and vardenafil) to boost the sales profits.¹ A study by Venkatesh *et al.*, stated that, approximately

60-70% of dietary supplements sold in India are unauthorized, counterfeit, or lack proper security measures.¹⁵ This issue has not escaped the attention of both regulatory bodies and the industry.¹⁵ To date, there is a lack of studies on the evaluation of the online advertisement of AHP and whether they comply with the local guidelines outlined by the MOH. Thus, this study aimed to evaluate the type of information provided in the online advertisements of AHP and to determine the type of infringements to the local advertising guidelines.

MATERIALS AND METHODS

Internet search of the advertisement for AHP

To identify the AHP sold in the local online market, we conducted a search using the keywords “ubat kuat lelaki” or “ubat tahan lama” (local Malay terms for AHP) on Google, the largest search engine from October 2021 to January 2022. Various search engines were piloted during the study, including Bing, Mozilla Firefox and Yahoo Search; it turned out that Google Search yielded the best results. Local name for aphrodisiac was used instead of the English term based on our initial search where keyword search using the local name for aphrodisiac can retrieve more local advertisements. The local terms were applied in the search instead of the English term to retrieve more local advertisements. Subsequently, the ‘shopping’ tagging was selected and then sorted by ‘relevance’ in the Google search. Table 1 shows the operational definition of terms used in the study.

Advertisements were initially screened based on the country of origin to exclude advertisements from outside Malaysia. The inclusion criteria for this analysis were advertisements in Malaysia-based media and online shopping platforms that promote AHPs. The exclusion criteria were advertisements from non-Malaysia-based media websites and those that promoted drugs such as sildenafil and other pharmaceutical products. Duplicate advertisements were removed when we detected similarity in statement, product, price, seller, or distributor. Figure 1 shows the flowchart of the selection process of advertisements in the study.

Data collection and analysis

Relevant data were retrieved from the selected advertisements. All the data were recorded in a standardised data collection sheet. Among the data were the types of information provided such as the name of the herbs/ingredients, indication or health claims, frequency of dosage form, price of the products and product registration number (MALXXXX). To confirm the validity of the registration number stated in the advertisement, the number was cross-checked against the National Pharmacy Regulation Agency (NPRA) website (<https://www.npra.gov.my/index.php/en/consumers.html>). Furthermore, advertisements that have been approved by MAB will receive a serial number that must be printed on the advertisement (Example: KKLIU/1234/

ABCDE). This applies to the advertisement of all supplements, traditional medicines and products registered with the MOH.⁹ In this study, the advertisement that promoted health-related products will be considered as having MAB approval if the KKLIU number is provided by the seller (<https://www.pharmacy.gov.my/v2/ms>). The infringement of the local guideline and the type of infringement were assessed based on the “Guideline on Advertising of Medicines and Medicinal Products to General Public (2015)”. See Appendix A.

The validation process followed a multi-tiered approach to ensure objectivity and rigor. Initial assessments were performed by the principal investigator who systematically compared advertisement content with the guideline criteria, identifying any potential breaches. These assessments were then verified by two (2) other research members, providing a secondary layer of review. This multi-level validation method enhances accountability, promoting greater reliability in identifying non-compliant content and ensuring consistent application of standards. Infringements were categorized into specific types based on their nature, such as misleading product claims, unauthorized testimonials, or exaggerated efficacy claims. To provide concrete examples, wordings and customer testimonies used in advertisements were collected and analyzed as samples of product claims. These samples were critically evaluated against the guideline's criteria to ensure compliance. Some reviews and customer testimonies in the advertisement were also collected as samples of product claims. Descriptive analysis was performed and described in frequencies and percentages.

Table 2 summarises the information retrieved from the advertisements included in the study. The average price of

the products advertised was RM 58.9±57.31, with most of the products being sold at RM 100 (87.1%), followed by between RM 101-RM 200 (10.9%). Most products advertised were in the form of a liquid spray (34.7%), followed by gel form (18.8%) and powdered beverage (14.9%). The majority of the products were marketed to be used only when intended (89.1%) while the rest were for application every 1-3 days (8.9%).

The product claim in each advertisement consisted of more than one beneficial claim. There were 8 types of statement claims related to sexual health in the advertisements. The most common product claim stated by the seller was the boosting of stamina in sexual activity (26.2%), followed by an increase in penile size and hardness (21.5%) as well as delayed ejaculation (17.4%). The least common product claim was no side effects (1.5%). Most of the products did not display the MOH registration number (66.3%). Interestingly, out of the 21 products that provided the MOH registration number, 13 of them were invalid numbers. All the

Table 1: Operational definition of terms used in this study.

Term	Definition
Herbs	Herbs are rudimentary plant materials including roots, seeds, buds, fruit, leaves and stems, either in the entire, fragmented, or powdered form. ⁴
Aphrodisiac Product	Any product which displays claims that it will stimulate or boost sexual desire or enhance sexual performance.
Advertisement	All types of communication that are intended to promote a specific product or service for medicinal purposes.

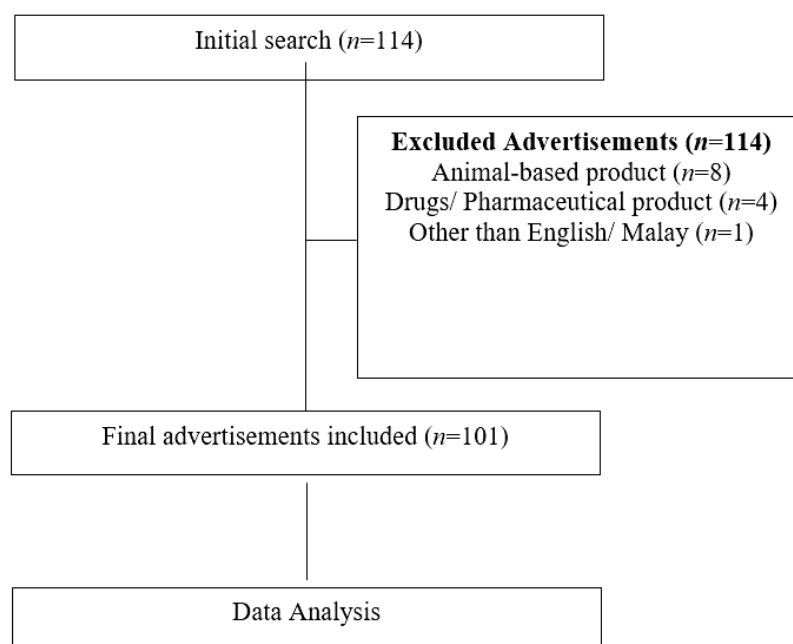


Figure 1: Flowchart of the selection process of advertisements.

Table 2: Information regarding the local AHP-related advertisements.

Variable		%
Cost of products (mean±SD in RM) (n=101)	58.9±57.31	
<RM100	88	87.1
RM101-RM200	11	10.9
RM201-RM300	0	0
RM301-RM400	2	1.9
Dosage form (n=101)		
Liquid spray	35	34.7
Gel	19	18.8
Powdered beverage	15	14.9
Capsule	13	12.9
Pill	8	7.9
Cream/lotion	5	5.0
Soap	3	3.0
Ointment	3	3.0
Frequency of use (n=101)		
When intended	90	89.1
Every 3 days	9	8.9
Every 5 days	2	2.0
Statement of product claims (n=195)		
Boost stamina in sexual activity	51	26.2
Increase penile size and hardness	42	21.5
Delay ejaculation	34	17.4
Increase libido	29	14.9
Increase sperm quality and quantity	14	7.2
Cure/prevent impotence	12	6.2
Cure/prevent premature ejaculation	10	5.1
No side effects	3	1.5
Provide a valid MOH registration number (n=101)		
Yes	21	20.8
No	67	66.3
Invalid number	13	12.9
Online shopping platform (N=101)		
Shopee	75	74.3
Lazada	26	25.7

advertisements were linked to online shopping platforms such as Shopee (74.3%) and Lazada (25.7%).

A total of 24 main ingredients were identified from the products of the included advertisements (Table 3). The main active ingredients were *Eurycoma longifolia* (16.2%) i.e. 'Tongkat Ali', followed by *Uncaria gambir* (15.8%) i.e. 'Gambir Sarawak' and *Tribulus terrestris* (6.1%).

The type of infringements identified from the advertisements is shown in Table 4. A total of 12 types of infringements were identified based on the unfounded claims made by the sellers as part of their promotional strategies to boost sales. All the advertisements did not provide the MAB approval number. Furthermore, all the included advertisements made claims without supporting evidence included a statement of guaranteed safety and display herbal/natural claims. Table 5 displays several examples of statements and patients' testimonies that are classified as product claims.

DISCUSSION

As a result of widespread Internet usage, there has been a surge of online purchases of health products worldwide. According to the Internet World Statistics in 2020, nearly 3 billion individuals used the internet daily. This represented a 577% sharp rise in internet users compared to the year 2000.¹⁶ The Department of Statistics Malaysia also reported a similar increase in local internet usage from 89.6% to 96.8% in 2020. The rising percentage of internet users is not surprising with the increased accessibility to modern devices such as laptops, smartphones and tablets. The advancement of the internet has facilitated the development of successful marketing techniques by many manufacturers and marketers of herbal supplements and traditional remedies.⁹ Kamis and Ramle explained how the online shopping platform is the most ideal method for sellers to market their products as it involves fewer human resources and overhead costs, thus making it cheap or even free.¹⁷ On the other hand, buyers or consumers also preferred online shopping because of its easy access, the convenience of product comparison and the payment process. A study by Kumar *et al.*, reported that, in Malaysia, social media marketing had a significant impact on consumers' purchasing decisions which is 58.4%.¹¹

This study aimed to investigate the types of AHP sold on the Malaysian online platform and the information provided in the online advertisements. We also set out to determine if these advertisements violated the local advertising guidelines. Our study indicated that the price for most of the AHP was less than RM 50 (57.4%), thus concurring with the finding that a buyer would be constantly looking for the greatest deal or trying to get the worth of their expenses. Liquid sprays are the most commonly advertised dosage form of AHPs, followed by gels and powdered beverages. Marketed primarily as fast-acting and easy-to-use, liquid sprays appeal to consumers seeking quick

Table 3: List of main active ingredients identified from the advertisements.

Ingredients			N (%)
Scientific Name	Common Name	Local Name	(N=101)
<i>Eurycoma longifolia</i>	Long Jack	Tongkat Ali	37 (16.23)
<i>Uncaria gambir</i>	Gambir Sarawak	Gambir Sarawak	36 (15.79)
<i>Tribulus terrestris</i>	Puncture Vine	Tribulus	14 (6.14)
<i>Nigella sativa</i>	Black Seed	Habbatus Sauda	13 (5.70)
<i>Lepidium meyenii</i>	Maca/Peruvian ginseng	Buah maca	11 (4.82)
<i>Panax ginseng</i>	Man-root	Ginseng	11 (4.82)
<i>Olea europea</i>	Olive	Buah zaiton	10 (4.39)
<i>Butea superba</i>	Butea gum tree	Butea superba	8 (3.51)
<i>Aloe vera</i>	Aloe vera	Lidah buaya	7 (3.07)
<i>Simmondsia chinensis</i>	Jojoba	Jojoba	6 (2.63)
<i>Smilax myosofiflora</i>	Ubi jaga	Ubi jaga	6 (2.63)
<i>Cordysepis sinensis</i>	Caterpillar fungus	Kulat beluncas/cendawan ulat	5 (2.19)
<i>Erythroxylum catuaba</i>	Catuaba	Catuaba	5 (2.19)
<i>Salvia rosmarinus</i>	Rosemary	Rosmeri	5 (2.19)
<i>Lycium barbarum</i>	Goji/wolfberry/matrimony vine	Buah goji	5 (2.19)
<i>Melaleuca alternifolia</i>	Tea tree/narrow leave paperbark	Pokok gelam	4 (1.75)
<i>Paullinia cupana</i>	Guarana	Guarana	3 (1.32)
<i>Mentha piperita</i>	Peppermint	Pudina	3 (1.32)
<i>Syzygium aromaticum</i>	Clove	Cengkih	3 (1.32)
<i>Cistanche</i>	Desert ginseng	Cistanche	2 (0.88)
<i>Cocos nucifera</i>	Coconut oil	Minyak kelapa	2 (0.88)
<i>Citrus sinensis</i>	Orange	Oren	2 (0.88)
<i>Crocus sativus</i>	Saffron	Safran	2 (0.88)
<i>Serenoa repens</i>	Saw palmetto	Saw palmetto	2 (0.88)
Others (unknown)			26 (11.40)

solutions for sexual performance issues. Their popularity is partly due to the perception that sprays are more effective, as they may have direct local effects at the site of action. This perceived immediacy can sometimes lead to exaggerated claims about their efficacy.¹⁸ Additionally, the external application of sprays reduces the likelihood of systemic absorption, lowering the risk of side effects compared to orally administered or systemic formulations. The discreet nature of sprays further contributes to their appeal, especially for consumers dealing with sensitive or intimate concerns. Manufacturers and advertisers capitalize on this demand by promoting sprays aggressively, as they are not only cost-effective to produce and package but also yield higher profit margins. Bold claims, such as the promise to "increase penile size and hardness," are often used in marketing to attract attention. The rise of online platforms has allowed for more targeted marketing to niche audiences specifically interested in sexual health products. This combination of direct targeting

and discreet purchasing makes liquid sprays a favored choice for marketing products with sensitive or even prohibited claims.

The second most common type of dosage form advertised was in gel form. Singh *et al.* reported that hydrogel formulations have been proven to be extremely effective in biomedical applications and pharmaceutical sectors.¹⁸ A few of the gel products (3.1%) listed in the advertisement contained *Aloe vera*. A study by Ikram *et al.*, showed that *Aloe vera* is being marketed as a useful ingredient in the production of health and cosmetic products nowadays as the aloe gel contains a variety of beneficial chemicals such as magnesium and sodium that can maintain a healthy muscle and nervous system.¹⁹ In addition, lignin in *Aloe vera* possesses penetrative properties up to seven layers of skin.²⁰ For the liquid spray and gel products, the user is instructed to directly spray or rub on the specific area of the penis in order to achieve the product claim of increasing the penile size and hardness. Products such as powdered beverages, tablets and

Table 4: List of infringements committed by the advertisements.

Statements of infringement	n (%) (N=101)
No approval from MAB (KKLIU number).	101 (100)
Substantiation of claim.	101 (100)
Statement of guaranteed safety.	101 (100)
Herbal/natural claims.	101 (100)
Superlative descriptors.	99 (98.0)
Prohibited claims.	99 (98.0)
Specific pharmacokinetic claims.	90 (89.1)
Before and after claims.	85 (84.2)
Standard of morality or decency.	80 (79.2)
No registration/no valid registration number from MOH.	79 (78.2)
User testimonial.	76 (75.3)
Impression of professional advice.	10 (9.9)

Table 5: Examples of product claims in the form of statements and patients' testimonies.

Benefits of the product as claimed by the seller	
Boost stamina in sexual activity.	"This Tongkat Ali capsule will boost your energy and make you last longer in bed by consuming it every 3 days."
Increase penile size and hardness.	"This liquid spray contains Gambir Sarawak extract, the user needs to spray at the penis area before starting sexual intercourse and feel the effect after 5-15 min. The penis will stay erect even after ejaculation."
Delay ejaculation and prevent premature ejaculation.	"Apply this gel to the penis area and it will overcome the rapid ejaculation during penetration."
Increase libido.	"A coffee mixture of powerful herbal ingredients such as red ginseng and maca will increase the appetite for sex and boost libido."
No side effects.	"If the user consumes this tablet, it is 100% safe and has no harmful side effects such as headache and allergic reaction."
User Testimonials	
"My partner and I feel happy and pleased during the sexual activity because of the longer erection of the penis. I do not easily get tired and feel energetic by consuming these XXXX pills."	
"The size of my penis becomes bigger and longer than usual after applying this XXX cream and it last more than 1 hr after the penetration."	

capsules were intended to be taken orally. Many of the AHPs in our included studies were prepared in powdered form to be made into beverages such as juices and coffee. Such preparation was more attractive to the consumers as it would be more convenient and palatable and convenient for them. On the other hand, tablets were found to be beneficial due to their stability, convenience of handling and transportation, as well as better patient compliance, thus making tablets the most extensively used solid oral dosage form.²⁰ In terms of the frequency of use, most of the externally administered AHPs were intended to be used only when necessary while oral products were stated to be consumed every three or five days. Such administration frequency could be questionable as most pharmaceutical products, such as sildenafil and tadalafil are intended to be taken only when necessary.

Among the included studies, the majority of the product claims made by the seller were increased for sexual activity. This finding could be attributed to the inclusion of *Eurycoma longifolia* (Tongkat Ali) and ginseng as the main active ingredients. *Eurycoma longifolia* and ginseng have long been reported as an energiser for male sexual activity.²¹ The second highest claim made was an increase in penile size and hardness. According to Nguyen *et al.*, Erectile Dysfunction (ED) may lead to physical illnesses such as depression, anxiety and partner-related difficulties.²² A study by Wang *et al.*, stated that the prevalence of ED was at least 40% among Asian and non-Asian male populations around the age of 40 years old.¹ In addition, some sellers also claimed that their products can delay ejaculation. This could be perceived as a potential solution for couples' whole sexual life are affected by men's ejaculatory problems.²² Premature Ejaculation (PE) is the most frequent condition related to sexual dysfunction and it affects nearly 20-30% of men.²³ Zhang *et al.*, also revealed that PE could lead to discomfort and anxiety during sexual intercourse, subsequently affecting the relationship between partners and spouses.²⁴

More importantly, we found that all the advertisements violated the Malaysian Medical Advertisement Board guideline. According to the guideline, claims of directly or indirectly being able to treat infertility are prohibited. Product advertisements also should not contain any statement or visual presentation that is likely to mislead consumers, whether directly or by implication. In addition, sellers should avoid describing their products with superlative phrases such as 'complete cure', 'enhancement of sexual organs' 'instant cure', 'libido', 'no side effect', or using any other terms with similar meanings as these words. To qualify as a "health claim," 2 essential components must be present: (i) a substance, which can be a food, a component of food, or a food ingredient and (ii) a link to a disease or health condition.¹⁵ If either of these elements is absent, the statement does not align with the regulatory standards for a health claim. The Nutrition Labelling and Education Act of 1990 (NLEA) permits FDA-approved claims, in accordance with FDA authorization regulations, to distinguish

food nutrient levels, commonly referred to as nutrient content claims.¹⁵ Ismail *et al.* stated that advertisements of supplements, traditional medicines and products registered with the MOH that have been approved by MAB must display the serial number such as KKLIU/1234/ABCDE.⁹ However, none of the advertisements in this study provided any KKLIU number and the majority of them did not have MOH valid registration number.

Apart from that, our findings indicated that the majority of the AHPs sold on the local online shopping platforms contained Tongkat Ali (*Eurycoma longifolia*), a flowering plant in the family Simaroubaceae. Sin *et al.*, reported a total of 718 plants classified as aphrodisiac and sexual enhancers, with the most frequently used being *Lepidium meyenii* (maca) and *Panax ginseng* (ginseng).²⁵ Several herbal medicines in the list matched the contents of the AHPs in our study, such as Tongkat Ali, Tribulus, maca, ginseng and *Butea superba*. These herbs are native to the Indochina region, including Cambodia, Laos, Myanmar, Malaysia, Thailand and Vietnam. They have been traditionally used as supplements for men's health or to heal andrological conditions.²¹ Locally, the Malayan natives have been using the roots and barks of Tongkat Ali as a traditional remedy for various diseases. It is also used as an energiser and ecological supplement. It has been validated by various biomedical researchers and clinical testing.²¹ Gambir Sarawak is the second most commonly promoted AHP. Gambir Sarawak (*Uncaria gambir*) is a vine that is native to South Asia, Malaysia and Indonesia. It contains high levels of flavonoids such as quercetin and catechins that are rich in anti-oxidant, anti-inflammatory, anti-bacterial, anti-cancer and anti-diabetic properties.²⁶ Apart from that, another common ingredient used in AHP is ginseng. Various ginsengs are found in this study, including *Panax ginseng* (Korean ginseng), black ginseng and bitter ginseng. In a recent study, Pallav Sengupta reported that preclinical studies showed that ginseng could enhance spermatogenesis and improve testicular functioning; sperm quality and motility.²⁷ Furthermore, ginseng is recognised as the "King of Herbs" because of its ability to improve general health, especially cardiovascular, neurological and immune systems. It is also a potent aphrodisiac that is widely used in traditional Chinese medicine for the treatment of sexual diseases and the promotion of sexual behaviour.²⁷

All the advertisements in this study infringed the MOH guidelines in their attempts to attract the buyer. The safety issues surrounding the high demand for unregistered sex enhancement products have become the main concern of health authorities in many countries, including the United State.¹⁴ Many consumers are still keen to try AHPs despite the lack of scientific evidence to support their effectiveness. Misuse of AHPs can result in adverse health effects.¹⁴ Similarly, some traditional Chinese herbal medicines that are marketed as natural health products have been found to contain active chemical ingredients such as synthetic

Phosphodiesterase type 5 Enzyme (PDE-5) inhibitors (sildenafil, tadalafil and vardenafil) to boost the sales profits.¹

Based on the study findings, it is recommended that online shopping platforms should have a built-in mechanism to filter the health and supplement products being advertised and sold to ensure that they comply with the advertising guidelines set by the health authority. Such a filtering mechanism is useful to prevent the sellers from promoting unregistered sexual enhancement products and making unfounded claims. The study also highlights the need to create public awareness about the safety concerns and validity of the AHPs as claimed by online sellers. Public awareness campaigns on the potential risks of AHP can be organized by government health agencies, consumer protection groups and health care professionals to educate consumers. In addition, specific websites and informational materials that contain potential risks, ingredients to avoid and steps to be taken to choose safe products can be developed for consumers. Before trying any sexual enhancement product, consumers should be advised to seek advice from healthcare providers to ensure safety and explore effective, scientifically proven alternatives. They should be taught the importance of researching products, reading reviews and avoiding those with exaggerated claims or unclear ingredients to make informed choices. Additionally, recognizing misleading advertising and being critical of promises that seem too good to be true can help consumers steer clear of unsafe options. Instead of relying on unregulated products, consumers should consider safer alternatives, such as lifestyle changes or professional treatments. Lastly, supporting stricter regulations and reporting harmful products can help protect public health and promote a safer marketplace.

Last but not least, healthcare professionals, especially doctors and pharmacists in the primary care setting also play a vital role in educating the public about the right way to obtain a valid source of information regarding AHPs, besides counselling them about the safety issues of these products. Healthcare professionals can guide patients, especially those with cardiovascular issues, on the risks, benefits and lack of scientific proof behind aphrodisiac herbal products. They can help patients spot misleading ads and warn against products with false or exaggerated claims. Healthcare professionals also encourage safe practices by advising patients to avoid self-medication and consult a doctor before using these products, especially if they have health conditions or take other medications. They can also work with regulators to ensure safer advertising and reduce unsafe products in the market. Lastly, they can track and report any side effects, helping to improve product safety and inform future regulations. In summary, healthcare professionals serve as educators, advocates and whistle blowers, helping to lower the risks by empowering consumers with accurate information and fostering a more regulated market for these products.

This study has a few limitations. Firstly, we only included product advertisements available from the Google search that appeared on online shopping platforms such as Lazada and Shopee. We did not include the AHP advertised on social media websites such as Facebook and Instagram. Further study should be conducted to include advertisements from other social media platforms. In addition, we did not perform any keyword search using Chinese or Indian terms for AHP and this might have limited the number of advertisements obtained. Next, we do not perform the verification of the authenticity of the products and the reported active ingredients. Verification of product claims and ingredient accuracy typically requires laboratory analysis or independent testing, which was beyond the scope of our current study. Despite all these limitations, this study provided baseline information on the advertisement of AHP products in Malaysia.

CONCLUSION

All the advertisements included in this analysis were found to infringe the local advertising guidelines for medicinal products by making at least one or more prohibited claims. The study strongly highlighted the need for more stringent control of AHP-related advertisements. In addition, healthcare professionals should play a more active role in creating public awareness by educating them on the safety concern of AHP so that all consumers will obtain the necessary information from valid sources before purchasing and consuming AHP.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

AHP: Aphrodisiac herbal products; **CTPM:** Chinese Traditional Patent Medicine; **ED:** Erectile Dysfunction; **FDA:** Food and Drug Administration; **MAB:** Medicine Advertisement Board; **MOH:** Ministry of Health; **NPRA:** National Pharmacy Regulation Agency; **PE:** Premature Ejaculation; **PDE-5:** synthetic Phosphodiesterase type 5 Enzyme.

SUMMARY

The problematic use of unregistered sex enhancement products is high in many countries. With the increasing incidence of sexual dysfunction among males, many of them are turning to aphrodisiac products for a hopeful solution. Males are turning to aphrodisiacs products as a possible treatment for the rising prevalence of sexual dysfunction. The study evaluated

advertisements of AHP in two biggest online shopping platforms in Malaysia. A total of 101 advertisements were included in the assessment. All the advertisements were included in the study infringed the local advertising guideline such as the absence of approval number, included substantiation of the claim and statement of guaranteed safety. The importance of providing the accurate facts to consumers on possible remedies by supplying the right information in pharmaceutical advertisements.

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Appendix A: The definition of the criteria used to determine the infringement of local advertising guidelines.

Statements of infringement	Definition
Substantiation of claim	<p>Advertisements should not exploit the ignorance and credulity of the public by including scientific data that the general public cannot comprehend, verify, or validate.</p> <p>All claims, descriptions and comparisons which relate to matters of objectively ascertainable facts should be capable of substantiation.</p> <p>Advertisements containing statistical claims should be supported by Malaysian data unless not available.</p>
Statement of guaranteed safety	<p>Claims pertaining to product safety should not imply, whether directly or indirectly that the product is not associated with or free from any side effects.</p> <p>Phrases such as “No side effects”, “No harmful effects”, “No toxic or adverse effects” are disallowed.</p> <p>Products containing natural ingredients should not suggest that the safety or efficacy of the product is due to the fact that it is natural.</p>
Herbal/natural claims	Advertisements should not suggest that the efficacy or safety of a product is due to the fact that it is natural nor claim that a product is ‘natural’ unless all of its components are naturally occurring.
Superlative descriptors	Superlatives descriptors, words or phrases not allowed in advertisements such as arousal, libido, no side effect, sexual powers and enhancement for sexual organs.
Prohibited claims	Advertisements must not make any direct or indirect claims about preventing, treating, curing, alleviating, or diagnosing such as kidney/heart disease, diabetes, mental health issues infertility and sexual dysfunction.
Specific pharmacokinetic claims	Claims of effectiveness relating to speed of action, absorption, dissolution, distribution, or other pharmacokinetic particulars are only acceptable if substantiated by evidence or is indicated in the approved label. Dosage instructions for once-a-day dosing do not necessarily mean that a claim of 24-hr relief is acceptable.
Before and after claims	<p>Advertisements should not contain improper, exaggerated or misleading claims or visuals to represent changes in the human body.</p> <p>Care should be given to ensure that all claims used are related to the approved product indication and the degree of severity for which the product is indicated. The claims should not depict a more serious or chronic condition. For example, images of liver cirrhosis should not be used in advertisements of products indicated for general support of liver function.</p>
Standard of morality or decency	Advertisements should not contain statements or visual presentations which is, or likely to be interpreted to be contrary or offensive to the standard of morality or decency prevailing in the Malaysian society or in any way defamatory or humiliating to any segment of the public.
User testimonial	Advertisement may include testimonials but the individual who give the testimony must be genuinely exist and responsible as well as accountable to the advertisement and its testimonials must refer to indications approved.
Impression of professional advice	<p>Advertisements should not:</p> <p>Have any visual and/or audio presentation of doctors, dentists, pharmacists, scientists, nurses and other paramedics, etc., which give the impression of professional or scientific advice, recommendation or endorsement; or</p> <p>Contain statements giving the impression of professional by scientific advice, endorsement or recommendation made by associations or persons who appear in the advertisements and who are presented either directly or by implication, as being qualified to give such advice, endorsement or recommendation eg the use of white coat, stethoscope, healthcare professional environment/any expression that provides undue authority that the product is recommended by a healthcare professional.</p>