

An Islamic View on the Utilization of Leeches and Worms for Pharmaceutical and Cosmetic Purposes

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Abstract: The aim of this paper is to assess the *fuqaha's* view from different *mazhabs* regarding the issue on the utilization of leeches and worms for pharmaceutical and cosmetic purposes. The usage of leeches and earthworms in modern medicine prove that they can be useful in treating many conditions. Leeches are now used in microsurgery to aid circulation. They have also been used in pain management for osteoarthritis. The chemicals in leech from the saliva are responsible for the advantageous clinical effects. Lumbrokinase, an earthworm fibrinolytic protein is a good remedy for many diseases such as thrombosis, diabetes and high blood pressure as well as an ingredient for cosmetic products. The interest of culturing leeches and earthworms for its highly beneficial protein has found to be economically viable. However, the issues on the concept of Halal and hygiene have been the major concern of this practice in this region. From the *Shariah's* perspective, using leeches and worms for medication (non-oral) and cosmetic purposed is permissible. The ruling on leeches and worms breeding and trading for beneficial purpose are also permissible.

Key words: Leeches • Worm • Pharmaceutical • Cosmetic • Halal concern

INTRODUCTION

Technology have now made it possible to use certain compounds from worms in the making of pharmaceutical and cosmetic products. Worms contain high protein and other minerals which is benefited for the treatment of anti-bacterial, anti-aging, mitogenic (inhibit rapid mitosis), anti-ulcer, *fibrinolytic* (blood clot factor), anti-inflammatory, anti-oxidative [1]. The earthworms called *earth dragon* in China have been used as an important ingredient in traditional Chinese medicine recipes. 'Compendium of Materia Medica' by Li Shizhen (1518-1593) listed 40 usages, such as allaying a fever, alleviating pain, smoothing asthma, lowering hypertension, anti-convulsions, dilating blood vessels, expediting child delivery, relieving impotence, promoting lactation, tonic and protecting the skin. As biochemical technology develops, some effective medicinal

compounds can be extracted from earthworms such as Lumbricin, Lumbrofebrin and Terrestrolumbrolysin and several enzymes such as Lumbrokinase [2].

Leeches also had gained popularity in modern medicine in the 1980s when studies showed they were effective in helping damaged tissue regain normal blood flow. The actual benefit in modern medicine is to provide a good blood flow at the required site in cases such as post-microsurgery. It is especially useful in plastic and reconstructive surgery as the leech induces blood flow that lasts up to ten hours. This has a tremendous benefit to the surgical site in shortening time and helps the stagnate blood to be drained from that particular area [3,4].

Muslims are involved in the industry of worms and leeches due to its benefits. For example, leeches therapy used by some Muslim as it has the same function with cupping, an Arab traditional medicine, where blood is

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drawn by vacuum from a small skin incision for therapeutic purposes [5]. In Malay, this practice is known as *bekam* and in Arabic *Al-Hijamah*. This therapy has been popularised by Prophet Mohammad SAW(570 - 635 A D) as stated in many Hadith such as that recorded by Muhammad al-Bukhari (5263) and Muslim Ibn al-Hajjaj (2952), saying: “*The Hijamah is the best of your remedies*” (خير ما تدأويتم به الحجامة).

The question is whether worms and leeches are hygienic and Halal to be used? If it has been extracted into medicine, whether the medicine is permitted to be applied by Muslim? Therefore, the objective of this paper is to analyze the opinion of *fuqaha* (certified Islamic scholars) regarding this issue in pharmaceutical and cosmetic. This article can be used as a guideline to the Muslims, in the utilization of worms and leeches for health and wellbeing.

The Benefits of Worms and Leeches in Pharmaceutical and Cosmetic Products

The Benefits of Worm: Earthworms are rich with high protein content. The crude protein in earthworms reaches about 70% of its total dry weight. The interest of culturing earthworms for its highly beneficial protein has been found to be economically viable [6]. Many enzymes and active matter can be extracted from earthworms for pharmaceutical, food, cosmetics and environment protection [7].

They can be processed into vermiceuticals, or pharmaceutical products, for the treatment of human diseases. There are many reports that these worms and body extracts have been used for the treatment of numerous human diseases in China and other Asian countries [8]. A study revealed that earthworms are used as folkloric medicine in the Philippines. They also confirmed the anti-blood clotting action of a crude extract from mashed earthworms used by an indigenous group in Western Visayas to thin the blood in the elderly. Back in 1986, an enzyme called lumbrokinase which dissolves blood clots in the human blood stream was isolated by a Japanese scientist. This breakthrough has been put into use through the manufacture and commercialization of dietary products [9].

The worms can be processed into human food and have been used as such by natives of Africa, South America, Japan, China, Papua New Guinea and New Zealand. In the Philippines, a food supplement named Eugeton was developed from cultured African night crawler with the same anti-coagulant properties as in imported products [9].

The Benefits of Leeches: The main leeches used in medicine are of the species *Hirudo medicinalis* (European medicinal leech) although the species such as *Hirudinaria manillensis* (Asian medicinal leech) and *Haementeria ghillanii* (Amazon leech) may also be used [10].

In 1983, there was a case where leeches were used in the post-operative treatment of a scalp avulsion case. In the 1990s researchers in Russia found new uses for leeches. Leech therapy has made resurgence in Russia for treatment of hypertension, migraines, phlebitis, varicose veins, arthritis, haemorrhoids and ovarian cysts. In the United States, plastic surgeons use them to drain blood from wounds after limb or tissue reattachment. The anti-coagulant they secrete into a wound prevents a scab from forming and allows healing from the inside outward [11].

Research on knee osteoarthritis has also shown that leech therapy may be helpful in decreasing pain and stiffness in joints [3]. Researchers from the Academic Teaching Hospital in Germany designed a study to review the benefits of leech therapy for osteoarthritis of the thumb. The randomized trial had 32 female participants with painful osteoarthritis in the thumb saddle joint. The women were assigned to one of two groups: (1) A single treatment of 2-3 locally applied leeches. (2) 30-day course with a standard treatment of topical Diclofenac twice daily. Over 60 days, researchers recorded feedback from the participants. Compared to the diclofenac group, the leech group reported significantly better rates of: pain relief, functionality, quality of life, drip strength [12].

Categories of Animal in the Islamic Law Perspectives:

To decide the status of worms and leeches whether they are hygienic, Halal or not, it is important to know the categories of animal in Islam have divided the animals into three categories, namely [13]:

- Aquatic animals, are the animals that only live in the water. There are two views of Islamic Jurists that permitted these type of animals:
 - a. *Hanafi's* scholars view that all aquatic animals are prohibited (Haram) except fishes. However, the dead fish floating on the water surface is forbidden to be consumed by the humans.
 - b. The majority of Islamic scholars, known as *Jumhur* view that the aquatic animals whether fish or other animal that lives in the water is permissible (Halal) to be eaten without being slaughtered but some of them are forbidden due to presence of poisonous and hazardous substances.

- Terrestrial animals, are animals that live on the land. It is divided into three types:
 - a. Animals without any blood like flies, bees, ants and as such. It is not permissible for human to consume them because it belongs to the category of *al-khabaith* (impurities), means the animals that are considered as disgusting by the Arab community. It was supported by the Holy *Quran* in surah al-A'raf verse 157: (وَيَحْرَمُ عَلَيْهِمُ الْخَبَائِثَ) means “and prohibiting for them impure things (*khabaa'ith*)”. However, it is permissible to eat locust because the *Hadith* had permitted and the Prophet had been reported as saying: (أَجَلْتُ لَنَا مَيْتَانِ، وَالْمَيْتَانِ السَّمَكُ وَالْجُرَادُ) that means “Two types of dead are not forbidden for us: The former being fish and locust”.
 - b. Animals that do not have blood flow like snakes, lice, lizards, rats and the like. This kind of the animals are not allowed because it belongs to the category of *al-khabith* and some have poison is harmful to the human.
 - c. Animals that have the blood flow. It is divided into two kinds that are tame animals and wild animals. Tame animals from *al-an'am* category are permissible (Halal) to eat like camels, cows and goat. These are based on what Allah had said in *Surah al-Nahl* verse 5: (وَالْأَنْعَامَ خَلَقْنَا لَكُمْ فِيهَا نِفْعَةً وَمِنْهَا تَأْكُلُونَ) that means “And cattle He has created for you (men): from them you derive warmth and numerous benefits and of their (meat) you eat.” Donkeys and mule (offspring of male donkey and female horse) are forbidden (Haram) to be consumed because there are *Hadith* that prohibited them. Similarly, it is permissible to eat the tame animals from bird category like poultry. While wild animals that have fangs or tusks like lions and tigers and birds with talons as predators such as hawks and bats are illegal to be consume based on the opinion of most scholars except Malik. Its prohibition was based on the incident during the war of *Khaibar* when the Prophet prohibited his companion from consuming the two categories of these animals.
 - Amphibious animals which live on land and water, like frogs, pinnipeds, turtles and crocodiles. The scholars have different opinions to determine the Islamic law applicable to this type of animal that can be divided into three opinions:
 - a. *Hanafiah* and *Syafieah* view that the animals of this type are non-halal to consume because it belongs to the category of *al-khabais* and some of them have harmful toxins. Some of the animals like frogs are forbidden to be kill according to a *Hadith*. If it is Halal, there should be no prohibition in killing them.
 - b. *Malikiah* view that it is permissible to eat frogs, small animals, insects (حشرات), crabs and turtles because no authority (*nas*) prohibit them. Therefore, it cannot be included in *al-khabaith* category. According to them, an animal can be considered *al-khabais* if there are any authority (*nas*) that forbid from consuming them.
 - c. *Hanabilah* view that every aquatic animals that can live on land like turtles and pinnipeds are forbidden (non-Halal) except after being slaughtered. Meanwhile, animals that has no blood flowing like crabs is permissible to be eaten without being slaughtered according to the opinion of Imam Ahmad. *Hanabilah* scholars also prohibit eating frogs and crocodiles.
- Generally, animals classified by the jurists either Halal or Haram for consumption is based on clear evidences from the Almighty of Allah and the permissibility and prohibition that has been explained by the Prophet. Meanwhile, the animals that are not specified in *Quran* and *Hadith*, there are consensus of the jurists (*Hanafiah*, *Syafieah* and *Hanabilah*) which will be decided by the *uruf* or norms of that particular society. Consequently, the animal is considered Halal when it is considered thoyyib by the Arab society. While, animals treated as *khabaith* by the Arab society is Haram. The *Malikiah* jurists have the opinion that animals which is not stated as Haram in *Al-Quran* and *Hadith*, and considered not disgusting by the Arabic and non-Arabic customs, is therefore Halal to be consumed [13].
- As a result of the review of the animal categories presented by the jurists, thus, it can be concluded that the leech is naturally included in the category of aquatic animals because it is not able to live long on the land. Based on the principle that all aquatic animals are Halal except those that are poisonous, then it is needed to determine that leech is not poisonous and not considered as disgusting by the *uruf* norms of the community, therefore it is Halal for consumption. However, there is no available evidence in Muslim communities that clearly permitted eating leeches. Therefore, it can be considered as *al-khabaith* which is non-Halal. Meanwhile, worm is a land animal that does not have blood. Most of jurists

categorize worms as *al-khabaith* although there are no explicit proof from al-Qur'an and Hadith of the Prophet about its forbiddance.

The Hukum of Practicing of Leeches and Worms for Medical and Cosmetics Purpose: Based on custom (the concept of *uruf*), leeches and worms are *al-khabaith* (impurities) animals which cannot be eaten. In Islamic law, *Uruf* (custom) and *âdah* (tradition) are considered important sources of law. Numerous injunctions of the Islamic Fiqh are based on customs and norms of particular applications and actions among the people [14]. Thus, the question arises whether leeches and worms are also regarded as dirty and unclean (*najas*). The jurists have proposed their views on this issue. All jurists agreed that carcasses of aquatic animals, consisting of either fish or other animals are pure as mentioned by Prophet in his about creatures of the ocean, as narrated by Abu Huraira:

A man asked the Prophet (peace be upon him), "O Messenger of God, when we are out in the ocean we carry little water with us. Hence, if we made wudu (ablution) with it, we would become thirsty. So can we make wudu from the ocean?" The Prophet responded, "Its water purifies and its dead are permissible to eat" [15].

However, the jurists differ on the purity of animals that has no flowing blood like worms. Jurists of *Hanafiah* and *Malikiah* regard this kind of animals as pure. While *Syafieah* jurists considered it as impure (*najas*). *Hanabilah* jurists regard them as impure if their origin of birth comes from unclean source. However if the source of birth is clean, it is considered as pure [13].

CONCLUSION

Based on the above discussions, leeches can be regarded as a clean animal although they are not edible. Therefore, the practicing of leeches and worms for medical (non-oral) and cosmetic purposes is convenient if the consensus views of these jurists are using as benchmark. Leeches and worms are the animals which bring many benefits to humans either in terms of medicine, agriculture, cosmetics and other fields. Consequently, the opinion allowing trade of both types of animals are practical, from the many benefits towards mankind. If there is clearly evidence that shows it is used for food which is prohibited by Islam then at that time of trading transaction

becomes totally illegal. This is similar (*qiyas*) to the sale of grapes, if it is sold for the purpose of producing alcoholic drinks, then it is illegal in the opinion of the majority of scholars like *Malikiah*, *Hanabilah* and definitive opinion from *Syafieah*, but if the grape is sold for other purposes than alcoholic drinks or *al-khamr* (intoxicating substances), then the sales is permissible according to the Islamic law.

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