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## AQER QERHA (*ANACYCLUS PYRETHRUM* DC.) A NOBEL DRUG OF UNANI SYSTEM OF MEDICINE-A REVIEW

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### Keywords:

Aqer Qerha, Aphrodisiac activity, Epilepsy, Medicine, Nootropic Activity, Unani System of Medicine

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**ABSTRACT:** Aqer Qerha (*Anacyclus pyrethrum* DC.), family Asteraceae is a perennial, procumbent herb, native to North Africa and Arab countries and in India, it is found in the Himalayas, Jammu and Kashmir, and North India. In Unani System of Medicine, it is an effective remedy for the treatment of a variety of diseases. The plant roots are reported for *muhallil-e-awram* (anti-inflammatory), *muqawwi-e-bah* (anabolic & aphrodisiac) *Moqawwi* and *moharrik-e-aasab* (tonic and stimulant of nerves) and used for *laqwa* (facial paralysis), *fali* (hemiplegia), *sara* (epilepsy), loosening of teeth, *isterkha-e-luhat* (flaccidity of uvula) and *luknat-e-zuban* (stammering), single as well as its compound formulations like gargle, decoction, liniment, majun, oil etc. The roots contain a colorless crystalline acid-amide known as pellitorine (pyrethrins) possesses an intensely pungent taste and produces a sialogogue effect, The other phytoconstituents reported in the plant include *N-isobutyldienedynamide*, polysaccharides hydrocarolin, inulin, traces of volatile oil and sesamin.

**INTRODUCTION:** Aqer Qerha (*Anacyclus pyrethrum* DC.) in Sanskrit known as Akarakarbha is an important medicinal plant which is used in both Unani and Ayurveda. Before Arabs, this drug was not used in Ayurvedic literature <sup>1, 2</sup>. It is a native to North Africa, cultivated in the Mediterranean, and Arabian countries. It is also cultivated in a few regions of India in the Himalayas, in North India, and has been grown on an experimental scale at elevations of 900 m at Katra (Jammu and Kashmir) <sup>3</sup>.

The small shoots grow with the beginning of the rainy season. The root is collected in autumn and dried <sup>4</sup> the root is the part used under the name of Aqer Qerha, pellitory or pellitory of Spain, <sup>1, 5</sup> it is pungent in taste and the person feels hot when it is chewed, and a burning sensation is felt on the tongue. <sup>1</sup> As far as quality is concerned the root found in the Arabian region is considered better. It is a well-known drug of Unani System of medicine and also an ingredient of some Unani formulations used in some diverse pathological conditions.

**Historical Background:** This drug is used from thousands of year by Unani physicians, Dioscorides (1<sup>st</sup> century), Jalinus (131-210 AD), Ibn Sina, Ishaque bin Imran, Abu Marwan bin Zohar (Avenzoar), mentioned this herb in their books <sup>6</sup>. Ainslie, speaking of pellitory root notes that this root is to be found in most of the Indian market;

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though I cannot learn that plant grew in any part of India and told that it is a native of Arab, Syria, and Bohemia, and it is no doubt from the first mentioned of these countries that it is brought to Hindustan, an export from mocha (Makka) <sup>7</sup>. In Brihatrayees period the drug *Aqer Qerha* (*Anacyclus pyrethrum* D.C.) is not to be found in any Vedic period books like, Charaka Samhita, Susrutha Samhita, Astanga Sangraha, but only mentioned by the later writers in Laghutrayees period, such as Sarangdhara and the author of the Bhavaprakasha who have doubtless derived their knowledge of its properties from the Arabs <sup>1</sup> who in their turn closely follow the Greeks <sup>1,7</sup>.

Sarangdhar, the author of Sarangdhar Samhita has mentioned Akarakarabha in Madhyama Khanda 7<sup>th</sup> & 10<sup>th</sup> chapter while mentioning the preparation of Akarakarabhadi churna & Kumaryasava respectively. Bhava Prakash: Author has mentioned this drug in 59<sup>th</sup> chapter as an ingredient of sapta shali vati. Madhava Nidana has not mentioned about Akarakaraabha anywhere. And later, in Nighantu Period the authors described the synonyms properties & action and indications of the drug in different Nighantu like Haritakyadi Nighantu, Nighantu Ratnakara, Nighantu Adarsha and Priya Nighantu <sup>8</sup>. It is considered to be Arab origin, it is mentioned in Arabian Nights under the name *Ukhowan*, <sup>9</sup> and probably Unani Hakeems brought it to India <sup>1</sup>.

According to Pliny, it was the herb used by the Magians under the name *parthenium* against intermittent fever, and according to Dioscorides, it is the plant that, under the name of *anthemis*, was used under the same manner. According to De Candole its introduction into Britain was perhaps before the coming of Romans, <sup>9</sup> and was used there until this century to promote salivary flow and to relieve toothache. <sup>10</sup> The European colonies carried it according to Josselyn to Northeast America before 1669 where it is to be found both under and having escaped from that place, as a wild plant <sup>9</sup>. The only difficulty is that *pyrethron* is described by Dioscorides as an umbelliferous plant, but with properties of pellitory. Hakeem Najmul Ghani correctly notes in his book Khazainul Advia, that the *pyrethrum* of Dioscorides resembling anethum is a drug which the Arabs call *Ud el Kareh Jabli*, very common in Syria (Sham), it is found at the

upper part of Wady Pardah and he had also seen its fruit, it has a root about a span (*angusht*) in length, as thick as the finger, and has many of the properties of pyrethrum. He quotes Antaki as mentioning the kind of *pyrethrum viz.*, African and also described by Ibn Baitar, and second is Syrian called *Ud el kareh* which is the root of Mountain Tarkhun and the kind described by Dioscorides. <sup>1</sup>

Author of Makhzan said that *tarkhun* is an Arabic form of *tukhun*, the name of a plant common especially in Faras (Persia) and Shiraz (Iran). There are two kinds of *Aqer Qerha* wild and cultivated, it is propagated by seed and by cuttings and has a hot temperament, astringent and sweetish taste. If taken in fasting it numb the tongue, on this account it is chewed to cover the tastes of nauseous medicines. The root of the wild plant is called *Aqer Qerha* <sup>1</sup> an Arabic name is derived from *Aqer* and *Taqreeh*, to mean causing a sore, <sup>12</sup> Selsus mentioned, it's used for opening the mouth of wounds. <sup>7</sup> The navigator Vasco da Gama, who had an impacted wisdom tooth, also carried it with him on his epic voyage. <sup>13</sup> Today it is considered to be the most popular herb of India and Arab.

Galen mentioned this plant to treat brain disorders (*amraze ra'as*) as masticator and for body spasm (*Ikhtelaje badan*) *Aqer Qerha* oil used topically. <sup>11</sup> *Ibn Masvya* used it as a gargle with *sikanjbeen unsali* for the evacuation of morbid matter from *uvula* and paste of *Aqer Qerha* in pista oil (*roghan habbatul khazra*) with another ingredient for the treatment of facial paralysis (*laqwa*) <sup>11</sup>. Zakaria Razi used it as snuff (*saoot*) for the treatment of facial paralysis (*laqwa*), and also mentioned as an ingredient of *Majoon Zabeeb* for treatment of epilepsy <sup>4</sup>.

#### Scientific Classification: <sup>8</sup>

<b>Kingdom</b>	: Plantae
<b>Division</b>	: Spermatophyta
<b>Subdivision</b>	: Angiosperms
<b>Class</b>	: Dicotyledons
<b>Subclass</b>	: Metachlamydae
<b>Order</b>	: Asterales
<b>Family</b>	: Asteraceae
<b>Tribes</b>	: Anthemideae
<b>Genus</b>	: <i>Anacyclus</i>
<b>Species</b>	: <i>Pyrethrum</i>

**Botanical Name:** *Anacyclus pyrethrum* (D.C.)<sup>5</sup>,

**Synonyms:** *Anthemis pyrethrum* L.<sup>14,5</sup>, *Anacyclus depressus* Mairs<sup>15</sup>, *Anacyclus freynii* Porta & Rigo<sup>15</sup>, *Pyrethrum radix*<sup>15</sup>.

**Vernacular Names:**

**Arabic:** Aqer Qerha<sup>1</sup>

**Bengali:** Akarkara<sup>16</sup>

**Berber:** Tagendaste, Igendest, Gendass, and Ignens<sup>15,6</sup>

**English:** Spanish Pellitory, Pellitory<sup>5,15</sup>

**French:** Anacycle, Pyrethre, pyrethre d' Afrique<sup>15</sup>

**Gujrati:** Akarkara,<sup>8</sup> Akarkaro<sup>16</sup>

**Greek:** Forusoon, Forsoon, Qoos, Qoobrun, Foriyun<sup>12</sup>

**Hindi:** Akarkara,<sup>15,1</sup>

**Kannada:** Akkalakari,<sup>18</sup> Akkalkara<sup>16</sup>

**Urdu:** Aqer Qerha, Aqerqerha<sup>1</sup>

**Malayalam:** Akkalakaram Akkikkaruka,<sup>18</sup>

**Marathi:** Akkirakaram<sup>17</sup>

**Panjabi:** Akarkara

**Polish:** Bertram

**Persian:** Kakra, kalu,<sup>12</sup> kalua, kazdam, akalawa, Beekhe Tarkhoon'

**Sanskrit:** Agragrahi, Akarakarabha,<sup>16</sup> Akarakarava<sup>17,18</sup>

**Sinhalese:** Akkarakkara, Akrapatta, Jallpattan<sup>19</sup>

**Tamil:** Akkirakaram<sup>18</sup>

**Telugu:** Akkalakara, Akkalakram Akarakaram, Akkarakaramu<sup>20</sup>

**Habit and Habitat:** A perennial procumbent herb bearing alternate and pinnate leaves; segments linear; ray florets white, purplish beneath,<sup>3</sup> much like chamomile in habitat and appearance, the root is brown, rough, shriveled surface, with the root

bark, closely adhering to the wood. They have a slight aromatic smell and persistent pungent test. The plant is native to North Africa, distributed in Mediterranean region,<sup>3</sup> it has been grown on an experimental scale at elevations of 900 m at Katra (Jammu and Kashmir), and Himalayan region from seeds imported from Algeria. The roots of the plant have long been imported into India for medicinal use<sup>3,15</sup>.

**Botanical Descriptions:** This is the *Anthemis Pyrethrum* of Willdenow, the name of which has been changed by De Candolle, and the plant placed in a new genus on account of a difference in the structure of its seeds<sup>9</sup>. It is a perennial herb with numerous spreading, prostrate or ascending branched stems,<sup>19</sup> more or less hairy in their upper portion, nearly smooth below, and coming from the crown from a long, tapering, vertical, brown, slightly branched root.

Leaves alternate, the ones at the root crown long-stalked, ovate or oblong in outline, deep bipinnatisect, segments linear, acute often again 2 or 3 fids, more or less hairy or nearly glabrous. Heads terminal, large, 1-1½ inch or more wide, with a wide disk; involucre scales in several rows, imbricated, ovate-lanceolate, varying in width, blunt or subacute, smooth, pale green, bordered with an edge of brown; receptacle slightly convex, with large obovate rounded transparent scales beneath the flowers.

Disk flowers bisexual, corolla tubular, contracted below, with 5 equal triangular spreading teeth, yellow; style exerted, stigma bifid, with 2 linear branches. Ray flowers female in a single row, corolla ligulate, the limb broadly oval, trifid at the apex, white above, tinged with bright pink below.<sup>5</sup> The root as found in shops is simple, 3-4 inches long by 3/8 to 4/8 of an inch thick, cylindrical or tapering, some time terminated at the top by bristly remains of leaves and having only a few hair-like rootlets, externally it has a brown, rough, shriveled surface, is compact and brittle, the fractured surface being radiate and destitute of pith which is almost obliterated, and internally radiating secondary wood occupying about 2/3 of total thickness particularly in older roots. The root is characterized by an aromatic odor and a pungent persistence test<sup>7,21</sup>.

Microscopically the cortical part of the root is remarkable on account of its suberous layer, which is partly made up of sclerenchyma (thick-walled cells),<sup>7</sup> the transverse section, magnified, presents a beautiful radiate structure with many yellow or brown oleoresin glands scattered,<sup>22</sup> several layers of tangentially slatted cork cells composed thick sub sized walls and devoid of any cell contents; some stone cells are also found in the outer bark, the development of periderm is exogenous, the cork cambium on inner side produced a few layers of parenchyma cells constituting the secondary cortex it is followed by a single layer of endodermis<sup>20</sup>.

Most of the parenchymatous cells are loaded with inulin,<sup>7</sup> in spherical granules or irregular masses, from 0.01 to 0.1 mm. in diameter, which is not affected by the addition of iodine T.S.<sup>22</sup> After the secondary growth, major portion of the stellar region is occupied by radiating secondary xylem in discrete strands capped with few layers of secondary phloem on outer side. The secondary wood is interrupted by broad rays. The xylem and phloem are made up of usual components; the pith is almost absent,<sup>16</sup> but often noted in young roots. In older roots, about 25-30 strands of secondary xylem are noticed. Vessels are mostly in tangential bands and fibers are found in small groups associated with vessels. Crystals of varying shape and size abundantly occur in the parenchyma cell of phloem xylem ray and pith region<sup>21</sup>.

The powder is grayish brown; under the microscope, after cleaning with 75%, chloral hydrate revealed that it is made up of the abundance of stone cells, fibers, and crystal of calcium oxalate of varying shape and size. Also, vessels types of parenchyma and sieve tube cells also constitute the root powder. Powder triturated with water given mucilage, and yellow color appeared after treated with 66% H<sub>2</sub>SO<sub>4</sub> and turned greenish yellow if treated with 5% NaOH, and dark green after treating with FeCl<sub>3</sub>. Oil stain appears if powder pressed between two filter papers. Presence of lignin, suberin, protein, Alkaloid, calcium, oxalate, callose also clarify by histochemical test using phloroglucinol +HCl, heating with KOH (conc.)+H<sub>2</sub>SO<sub>4</sub>, Vagner's reagents, Dragonsdrf reagents, acetic acid, caustic alkali +HCl, aniline blue+Aqn, Sodium Carbonate respectively. In fluorescence analysis of the powder drug-treated

distilled water given dull yellow color in ordinary light and brown in U.V light, with acetone shows light green-yellow color in U.V light and light yellow in ordinary light, in benzene it is colorless in U.V light. Treated with chloroform appears brown in U.V. light and light yellow in ordinary light, in case of treatment with CCl<sub>4</sub> it appears dull white in U.V. light and ordinary light it is colorless, no color appears by both lights in powder treated with petroleum ether, ethyl acetate treatment show creamy color in ordinary light and greenish yellow in U.V. light. Treatment with methanol gives a dark yellow color in ordinary light and light green in U.V light and colorless when treated with petroleum ether<sup>21</sup>.

### Description of Drug in Unani:

#### Identification (Shanakht and Mahiyat):

According to Ibn Baitar it is a root of a plant. All parts of the plants resemble with the white flowering chamomile, the stems lie on the ground for part of their length, and the flowers are yellow<sup>1</sup> but Hakeem Momin Khan told as pinkish white colored flowers<sup>14</sup>. The root is almost cylindrical and thick as 1-2 inches and length with 2-4 inches, externally it is brown and wrinkled very slightly twisted and tapering and often crowned with a tuft of hairs of no color, and easy to break with a characteristic smell and pungent test<sup>1</sup>.

There are two varieties of Aqer Qerha is described in Unani literature one of them is Ud-el Qarah-Jabli, as described by Dioscorides with a Greek name "qoriyoan"<sup>6, 14, 24</sup> or "foriyoan"<sup>1</sup> is another drug which resembles characteristically with Aqer Qerha and morphologically with saunf (*Foeniculum Vulgaris*) and soya (*Anethum sowa*) plants, with yellow umbelliferous flowers, this is a big plant with a height of a human, and also have fruits, length of the root is nearly one *balisht* and width with one finger<sup>1</sup>.

In Damask this plant is called *Ud el Qarah Jabli* and found abundantly in Sham,<sup>6</sup> the plant characteristics are resembled with the original *Aqer Qerha*, but this is not the original one<sup>1</sup>. The root of the wild variety known as *Ud el Qarha maghrabi* is the actual plant which is called *Aqer Qerha* (*Anacyclus pyrethrum* D.C) and known with the name of Taghendast, Indest, Gendass, and Igneous in Berbers<sup>15</sup>. Ibn Baitar said that the drug was only

known by southern, especially Africans, and he also collected the plant and got knowledge about the plant from the local persons of the native places where the plant was found<sup>6</sup>. This is also called Baboona Hispanic or Spanish chamomile, which grows in Western Africa and Algeria. The root is cylindrical with a length of 2-4 inches and thickness of 1-2 inches<sup>1</sup>.

**Part Used:** Roots<sup>6, 24, 25</sup>

**Choice:** The best pellitory is that which is bitter, an irritant to the tongue and thick as a finger,<sup>24</sup> and internally it looks white, it is better to use till seven years.<sup>1, 14</sup>

**Temperament (Mizaj):** It is hot and dry in the 3<sup>rd</sup> degree<sup>14, 23, 24, 26</sup>. But Ibn Rushd and Damashki considered it Har in 4<sup>th</sup> degree<sup>6, 23, 25</sup>.

**Action (AF'AAL):** On chewing, it expelled the phlegm<sup>24, 27</sup>, when mixed with some oil and massaged, it causes excessive perspiration which is attributed to its burning property.<sup>28</sup> It affects as *jali* (Detergent)<sup>14</sup>, *mudire arq* (diaphoretic), *mudire baul* (Diuretic), *mudire haiz* (Emmenagogue),<sup>29, 1</sup> *mudire luabe dahan* (Sialogogue),<sup>26</sup> *mudire sheer* (Lactagogue),<sup>29, 1</sup> *mufatteh sudad* (Deobstruent),<sup>6, 26</sup> *muhallil* (Resolvent),<sup>1, 6, 26, 29</sup> *muhammir* (Rubefacient),<sup>1, 6</sup> *mumsik* (Avasicious),<sup>29</sup> *munaqi balgham* (Evacuant of phlegm), *munaqi fuzlat dimagh* (Evacuant of morbid matter from brain),<sup>1, 6, 26, 29, 30</sup> *musakkhine akhlat* (Calorific)<sup>6, 26, 29</sup>, *mushtahi* (Appetizer)<sup>1, 6, 25, 26</sup>, *muqawwi aam* (General tonic)<sup>1, 26</sup>, *muqawwi bah* (Aphrodisiac)<sup>1, 6, 29, 30</sup>.

**Main Action:** *Tanqiya-e-dimagh* (Evacuation of morbid matter from brain) and *qate balgham* (phlegm resolvent)<sup>26</sup>.

**Clinical Uses in Unani System of Medicine:** It is used in *amraze baridah balghamia* (phlegmatic disease) like *falij* (paralysis), *kuzaz* (tetanus), *isterkha* (flacidity), *istesqa* (dropsy), *laqwa* (facial paralysis), *rash'a* (tremor),<sup>29</sup> *suda'* (headache) and *shaqiqa* (migrain)<sup>33</sup>. Due to its *mukhaddir* (anaesthetic) action, it is used as *mumsik* (avasicious) in sexual debility, in the form of local application like liniment and paste as single or compound<sup>26</sup>. A paste made from *Aqer Qarha* and some other drugs used in *sarsam balghami*

(phlegmatic meningitis) and *lisarghus* (sleeping sickness). Hakeem Akbar Arzani used the pills made of *Aqer Qerha* with other drugs, in *dwar* (vertigo), *ra'asha* (tremor) and the decoction for *fasade za'eqa* (dysgeusia) or *butlane zauq* (ageusia) which occur due to cold<sup>31</sup>.

Near about all physicians of Unani medicine considered its beneficial effect on teeth, gum and throat related diseases like toothache, dental carries,<sup>31</sup> looseness of teeth, pyorrhea, sore throat and also related to speech disorders like falccidity of tongue, stammering, chronic cough; they used it in different forms like powder, gargle, linctus, tooth powder<sup>26</sup>. It also has an instant effect to cure hiccup; being an analgesic, it is useful in chest pain due to pneumonia, pleurisy<sup>32</sup> and phlegmatic asthma<sup>29</sup>. The gargle of *Aqer Qerha* with *Ayarij fiqra* (*Aloe barbadensis* Mill.) is very useful in case of altered temperament of heart occur due to excessive cold;<sup>32</sup> Ibn Sina mentioned its use in fever as a message on the body mixing with olive oil, helps perspiration and bring down the temperature thus it prevent the shivering which may occur with or without fever<sup>23</sup>.

**Dosage (Miqdar Khurak):** The dose of drug used different Unani physicians is 1 gm<sup>29, 26</sup> and 2.5-3.5 gm<sup>1</sup>.

**Toxicity (Mazarrat):** The powdered root is an irritant to the mucus membrane of the intestine if used in large quantity causing bloody stool and tetanus-like a spasm, and profound stupor<sup>3</sup>, contact dermatitis occurs if handled incorrectly<sup>15</sup>.

**Corrective (Musleh):** Kateera (*Gum Tragacantha*), Rubbus soos (*Glycyrrhiza glabra*) Samagh e arabi (Gum Acacia)<sup>1, 26</sup>.

**Badal:** Dare filfil (*Piper longum*)<sup>26</sup>.

**Compound (Murakkab) Drugs of Aqer Qerha:** There is a lot of compound drugs of *Aqer Qerha* are used in Unani Medicine for various ailments as follows:

*Roghane Qust*, *Majoon Zabeeb*, *Majoon Aqer Qerha*,<sup>33</sup> *Habbe Qoqaya*,<sup>34</sup> *Habbe Ayarij*,<sup>35</sup> *Majun Abi Muslim*,<sup>36</sup> *Majoon Sara*, *Majoon Seesaleyooos*, *Majoon baladuri*<sup>31</sup> *Ancardia*, *Khameera Gaozuban Ambary Jadwar Ood Saleeb Wala*,<sup>28</sup> and

*Barshasha* are used for the treatment of epilepsy. *Roghane Aqer Qerha*,<sup>27</sup> *Majun khoози*,<sup>36</sup> *Habbe munshit*, *Habbe mushkil kusha*, *Habbe muqawibah*,<sup>28</sup> *Majun feroznosh*,<sup>36</sup> *Sanun Mukhrije Ratoobat*, *Sanun Mujallie Dandan*, *Arastoon sagheer*, *Arastoon kabeer*, and *Jawarish fandadiqoon*<sup>36</sup>.

### Scientific Reports of *Anacyclus Pyrethrum* DC:

The plant root is reported for Antihyperglycemic<sup>37</sup>, antidepressant<sup>38</sup>, anti-inflammatory<sup>39</sup>, immunostimulating<sup>40</sup>, antioxidant<sup>41</sup>, aphrodisiac<sup>42</sup> activities of solvent extracts of *Anacyclus pyrethrum* L., has been evaluated in animal models.

**CONCLUSION:** *Aqer Qerha* is a well known medicinal plant which is broadly used for the treatment of neurological disorders in tropical countries including India. It has many beneficial uses, some of them have been experimentally established, and endeavor has been made to isolate prospective active constituents and their mechanism of action, which are new vistas for a clinical trial. The present review had gathered the all available knowledge described by *Unani Attiba* in their valuable old classical text extensively. The available exhaustive literature regarding *Aqer Qarha* will robust further research on this plant

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