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Phytopharmacology of unani drug *Zeerah Siyah* (*Carum Carvi* Linn)-A review

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Abstract

The objective is to report *Zeerah siyah* in Unani Classical literature, phytochemistry, pharmacology and Unani formulations and to make an effort to prove the strengths of *Zeerah siyah* mentioned in Unani classical literature. This review gives research questions to young researchers of Unani and other traditional system of medicine. All the information on the plant available in Urdu, Persian, Arabic language in classical Unani literature available in different libraries of India from recent to past were searched, for phyto-chemical and pharmacological activities and computerized databases such as Medline, Pubmed, Ovid SP, Google Scholar and Science-direct were searched. The temperament of *Zeera siyah* is Hot and Dry in third degree, therefore Unani scholars have recommended to detoxify it before use. Almost all phyto-chemical, experimental and clinical trials carried out on *Zeerah siyah* were collected. It has been used for several centuries to treat gastrointestinal disorders and obesity in Unani system of medicine. It is *Muhazzil* (Anti-obesity); *Daf-i Nafakh* (Anti-Flatulent); *Fad-i Zahar* (Antidote) *Hazim* (Digestive); *Mudammil-i Qurooh* (Cicatrizant); *Mudir-i Bawl* (Diuretic); *Mudir-i Shir* (Galactogogue); *Mudir-i Tams* (Emmenogogue); *Mufatti-i Hasaat* (Lithotriptic); *Kasir-i Riyah* (Carminative) etc. as per Unani classical literature. Phytochemical studies reveals that it contains limonene, carvacrol, carvone, carvenone, -terpinene, [-pinene, linalool, and p-cymene etc. Total of twenty seven Unani classical books were referred. Thirty one different experimental and clinical studies were recognised. These studies prove the effect of *Zeera siyah* (*Carum carvi* Linn).

Keywords: *Zeera Siyah, Kamoon, Carum Carvi, Unani System of Medicine, Phytochemistry, Pharmacology*

1. Introduction

Kamoon is derived from a Unani word *Khamoon*. It has been used for several centuries to treat gastrointestinal disorders e.g. *Fuwaq* (hiccup), *Maghas* (gastrointestinal cramps) etc. [1-4]. *Kamoon* or *Zeera Siyah* are fruits of *Carum carvi* Linn. It is an annual or perennial herbs found in temperate and subtropical regions [5-6]. It is native to Europe and west Asia. It is found in Egypt, Morocco, Australia, and China. In India, it is found in Himalaya, Kashmir, Garhwal, Himachal Pradesh and North India [5-10]. It is biennial or annual glabrous herb, 30-100 cm in height, have taste and an aromatic smell. Root is fleshy tapering brown, often branched, stem is an erect angular grooved filled with latex; flowers are small whitish or reddish in colour. Fruits which is used for medicinal purpose is nearly 1/6 inch long, oblong oval, yellowish brown angular main ribs [5, 9, 11]. According to Unani literature, it is found as *Jungli/Barri* (Wild) and *Bustani* (Cultivated) variety and each has four varieties (i) *Kirmani*, which is black in colour and bitter in taste, its shelf life is 7 years, (ii) *Kamoon farsi*, which is pale in colour, (iii) *Zeera Nibti*, which is white in colour (iv) *Zeera Shami* [2-4, 12-16].

2. Material and Methods

The books on Unani classical and ethnobotanical literature available in libraries of Central Council for Research in Unani Medicine, Headquarters, New Delhi, Regional Research Institute, Aligarh, Seminar Department of Ilmul Advia, Ajmal Khan Tibbiya College Library, AMU Aligarh were thoroughly searched. Apart from that online and offline review included research papers and review articles published by reputed were also referred to collect the data on *Kamoon* (*Zeera Siyah*).

3. Results:

3.1 Taxonomic hierarchy:

Kingdom	:	Plantae
Division	:	Magnoliophyta
Class	:	Magnoliopsida
Order	:	Apiales

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Family	:	Umbelliferae
Genus	:	Carum
Species	:	carvi

3.2 Origin and Distribution

Carum carvi (Caraway) is a member of family Umbelliferae due to flowers head are umbrella shaped. It is Erect, branched, glabrous and biennial herb. Aroma of Leaf and flowers are similar to parsnip, powerful when dried; crushed seed strong smelling. The Root are Tap, thick, fusiform, while Stems are Striate, smooth, hollow the average height of plant are 25-60 cm or 1.5 to 2 feet. Umbels are 2-4 cm in diameter compound, irregular; Leaves have soft fern with thread-like divisions. Flowers are White, pink or red. The Outer petals are radiating. Styles form stylopodium. The Fruit are Small brown, that are often erroneously referred to as seeds, 3-4 mm, ellipsoid, fruit is schizocarp which at harvest splits into two halves, called, seeds; laterally compressed somewhat horny and translucent, crescent-shaped, smooth, slightly curved and marked with five distinct, pale ridges [6, 8, 11, 17].

3.3 Mizaj (Temperament)

There is controversy between the Unani physicians for its temperament, some says it is Hot & Dry in third degree of temperament [1, 3, 13-14, 18-21, 34], while some says it is Hot & Dry in second degree of temperament [22].

3.4 Part used

Most of the scholars have mentioned that fruits of *C. carvi* are used for medicinal purpose; however, its essential oil is also used for therapeutic. Action of *Zeerah siyah* mentioned in Unani classical literature alphabetically arranged here followed by the indication of the uses.

3.5 Actions as per Unani classics

- Daf-e-Nafakh (Anti-Flatulent) [4, 25, 34]
- *Fad-i Zahar* (Antidote) [20, 14-15, 16, 26]
- *Habis-e-Dam* (Hemostyptic) [31]
- *Hazim* (Digestive) [1, 13, 15-16, 26-27, 32]
- *Jali* (Detergent) [33]
- *Kasir-i Riyah* (Carminative) [2-4, 12, 14-16, 20-23, 25-27, 32-34]
- *Mane'Arq* (Anti-Perspiration) [1-3]
- *Mudammil-i Qurooh* (Cicatrizant) [2-4, 12, 14, 31]
- *Mudir-i Bawl* (Diuretic) [1-3, 14, 16, 21, 22, 26-27, 33, 34]
- *Mudir-i Shir* (Galactagogue) [16, 26, 32-33]
- *Mudir-i Tams* (Emmenagogue) [1-3, 14, 21, 32-33, 34]
- *Mufatti-i Hasaat* (Lithotriptic) [3, 13-14, 18, 28]
- *Muhallil* (Resolvent) [1, 3, 19, 22, 29, 31, 33]
- *Muhallil-i Waram* (Anti-inflammatory) [1, 20, 28]
- *Muhazzil* (Anti-obesity) [23, 24]
- *Mujaffif* (Desiccant) [1-4, 12-13, 19, 21-22, 25, 27-29, 33]
- *Mufatteh* (Deobstruent) [31]
- *Mukhrij-i Balgham* (Expectorant) [21-22, 33]
- *Mulattif* (Demulcent) [1-3, 14, 16, 19, 21, 25-26, 29, 31]
- *Muqawwi-i Aam* (General Tonic) [1-3, 14, 25]
- *Muqawwi-i Basr* (Strengthens the vision) [1, 4]
- *Muqawwi-i Kabid* (Liver Tonic) [1-3, 14, 25, 27]
- *Muqawwi-i Me'da* (Stomachic) [1-3, 14, 22, 23, 25, 33]
- *Muqawwi-i Kuliya* (Renal tonic) [1, 3, 14, 25]
- *Musakkkhin* (Calorific) [2, 3, 19, 27, 29]
- *Mushtahi* (Appetizer) [1-3, 15, 21, 27]
- *Muwallid-i Hararat* (Thermogenic) [1, 21]
- *Qabiz* (Astringent) [1-4, 12, 14, 19, 22, 25-29, 33]
- *Qatil-i Kirm* (Vermicidal) [1, 3, 14, 22]

3.6 Indications as per unani classics:

- *Auram* (Inflammation) [3, 4, 26]
- *Busoor-i Labaniyah* (Acne) [3, 4]
- *Bawaseer* (Haemorrhoides) [1]
- *Bawl al Dam* (Haematuria) [4]
- *Bayaz al Ain* (Corneal opacity) [22]
- *Ehtibas-e-Haiz* (Amenorrhoea) [2, 3, 13-156, 26, 27, 32]
- *Fuwwaq* (Hiccup) [1-3, 12-14, 16, 22, 25, 26]
- *Ishaal* (Diarrhoea) [1, 3, 16, 21, 22, 26]
- *Jarab* (Trachoma) [3, 13, 14, 16, 20, 26, 27]
- *Kasrat-i Luaab* (Excessive salivation) [3, 13, 14, 27]
- *Khafaqaan* (Palpitation) [2-4, 14]
- *Maghas-i Reehi* (Tenesmus due to flatulence) [3, 14, 16, 20, 26-27]
- *Maghas* (Gastrointestinal cramps) [1, 4, 22]
- *Nafakh* (Flatulence) [1-3, 16, 23, 26-27, 32, 34]
- *Qillat-e Laban* (suppressed lactation.) [32]
- *Qurooh al Ain* (Corneal ulcers) [3, 14, 16, 20, 26]
- *Ramad-i Haar* (Cojunctivitis) [2, 3, 14, 16, 20, 26]
- *Ruaaf* (Epistaxis) [2-4, 14-16, 18-19, 26-27, 34]
- *Sue Hazm* (Indigestion) [20, 22, 32, 34]
- *Sabal* (Vascular keratitis) [2-4, 14, 16, 20, 26, 27]
- *Taqtir al Bawl* (Dribbling of urine) [1, 3-4, 13-14, 27]
- *Ushr-i Bawl* (Dysuria) [28]
- *Ushr-i Tannaffus* (Dyspnoea) [2-4, 14-16, 20, 26-27]
- *Waja al Asnaan* (Odontalgia) [1-3, 14, 16, 20, 34]
- *Waram-i Rahim* (Metritis) [22]
- *Waram-i Tihaal* (inflammation of spleen) [2, 3, 14, 16, 26]
- *Waram-i Unsiyain* (Orchitis) [3, 13-14, 16, 18, 26]
- *Zufrah* (Pterygium) [2-4, 14, 16, 20, 22, 26, 27]

3.7 Dose

Various Unani Physicians have recommended that the therapeutic dose of *Zeera Siyah* may be 1 gm [32]; 2-7 gm [1-2, 13, 14, 16, 19, 25, 29, 33]; and some are of the opinion that its dose may be 7-10.5 gm [30].

3.8 Substitute

The substitutes mentioned in different classic of Unani system of medicine are *Kalonji* (*Nigella sativa*) [1]; *Kishneez-e-Sehrai* [1-3, 14, 19-20]; *Nankhawa* (*Trachyspermum ammi* (Linn.) Spragne) [14, 25]; *Zeera Safaid* (*Cuminum cyminum*) [1, 3, 13-16, 25, 33].

3.9 Corrective

The drugs which have been recommended to be used along with *Zeera Siyah* so as to avoid its adverse effects are *Kateera* (*Sterculia urenus*) [1, 4, 13, 14, 19, 21, 25, 26, 30, 33]; *Sirka* (vinegar) [1, 2, 16].

3.10 Chemical constituents

The major compounds occurring in caraway are carvacrol, carvone, α -pinene, limonene, γ -terpinene, linalool, carvenone, and p-cymene, whereas the major compounds occurring in cumin are cuminaldehyde, limonene, α - and β -pinene, 1,8-cineole, o- and p-cymene, α - and γ -terpinene, safranal and linalool. In aqueous and solvent derived seed extracts, diverse flavonoids, isoflavonoids, flavonoid glycosides, monoterpenoid glucosides, lignins and alkaloids and other phenolic compounds have been found [35-40]. Roots of caraway have also been found to contain flavonoids [41]. The seed and root of caraway showed the presence of polyacetylenic compounds [42]. In a recent study, a nonspecific lipid transfer protein has been isolated from the cumin seed [43]. Several nutrients (vitamins, amino acids, protein, and minerals),

starch, sugars and other carbohydrates, tannins, phytic acid and dietary fiber components have also been found in cumin seeds [44-48]. An aromatic compound, glucoside and a glucide were isolated from the water-soluble portion of the methanolic extract of caraway fruit (*Carum carvi* L.). Their structures were clarified as 2-methoxy-2-(4'-hydroxyphenyl) ethanol, junipediol A 2-O-beta-D-glucopyranoside and L-fucitol [49]. The flavonoid constituents of caraway were included quercetin-3-glucuronides, isoquercitrin, quercetin 3-O caffeoylglucoside, and kaempferol 3-glucoside [50].

3.11 Pharmacological studies

The scientific experimental and clinical studies conducted on *Zeerah siyah* (*Carum carvi* linn.) are arranged alphabetically.

3.11.1 Anti Cholinesterase activity

Fruit extract of *Carum carvi* effectively inhibited AChE (acetylcholinesterase) and BChE (butyrylcholinesterase) and exert a beneficial therapeutic role in the treatment of Alzheimer's disease by restoring of cognitive function and improving the memory [51-54].

3.11.2 Antidiabetic activity

Methanolic and Aqueous extracts of cumin seeds reduced the blood glucose and inhibited glycosylated hemoglobin, creatinine, blood urea nitrogen and improved serum insulin and glycogen content in alloxan [55, 56] and streptozotocin (STZ) diabetic rats [57-62].

3.11.3 Anti-amyloidogenic

Ethanol extract possess acetylcholinesterase inhibitory activity as well as anti-amyloidogenic activity in order to address multiple facets of Alzheimer's disease [63].

3.11.4 Antibacterial

Essential oil of *Carum carvi* showed antibacterial property against isolated lactic acid bacteria in sliced vacuum-packed cooked sausage and against *Clostridium* genus [64-68].

In a clinical trial hydroalcoholic extract reduced intensity of oral mucositis in 5-fluorouracil induced oral mucositis in golden hamsters [69].

3.11.5 Anticarcinogenic

Caraway was found to prevent the occurrence of rat colon cancer induced by a colon-specific carcinogen, 1, 2-dimethylhydrazine (DMH) [70-73]. Solvent derived seed extract of caraway reversed 2,3,7,8-tetrachlorodibenzo- p-dioxin (TCDD) induced mutagenicity [71-74]. Caraway oil has specifically been highlighted for anticarcinogenic action [71, 75-77]. Ethanol extracts of showed anticancer activity against several human cancer leukemia cell lines [78]. Methanol extracts showed antiproliferative activity in tumor cell lines MK-1, HeLa and B1 6F10 [75, 79]. An essential oil component of leaves and fruits of caraway 4,7-dimethoxy-5-(2-propen-1-yl)- 1, 3-benzodioxole, also named apiole, apiol or parsley apiol, showed anticancer activity [80]. SY-1 analogue "apiole" decreased the proliferation of COLO 205 cells, The G0/G1 phase cell cycle arrest induced by apiole (75-225 µM) was associated with significantly increased levels of p53, p21 and p27 and decreased levels of cyclin D1. Aqueous and solvent derived caraway extracts have shown protective effect against several mutagens such as N-methyl-N'-nitro-N-nitrosoguanidine (MNNG), dimethylnitrosamine [81-83]. Thymoquinone (TQ) from black caraway seeds anticancer activity in triple-negative breast cancer (TNBC) cells that lack

functional tumor suppressor p53 in cisplatin- and docetaxel-induced cytotoxicity [84]. Carvone, a monocyclic monoterpene in essential oil represents potential for promising anticancer agent to improve brain tumors therapy [85]. Oil significantly inhibited the formation of premalignant lesions based on aberrant crypt foci (ACF) in 1,2-dimethylhydrazine treated rats when compared to respective controls [86]. Essential oil showed histopathologically and biochemically anticancer activity in colon premalignant lesions induced by 1,2-dimethylhydrazine in hepatic xenobiotic metabolizing enzymes [87]. Caraway seeds extractable in organic solvent potentially reverse the TCDD-dependent induction in cytochrome P450 1A1 in the rat H4IIE cells [88].

3.11.6 Anti-colitic activity

Hydroalcoholic extract and essential oil of caraway possess anti-colitic activity irrespective of the dose and route of administration in an immunological model of colitis in rats induced by trinitrobenzene sulfonic [89].

3.11.7 Anticonvulsant

Aqueous extract and essential oil of caraway showed anticonvulsant activity against pentylenetetrazol induced convulsions. The findings support the acclaimed antiepileptic effect of caraway in folk medicine and propose its potential use in petit mal seizure in humans [90].

3.11.8 Antifertility activity

Aqueous and ethanolic extract significantly decreases FSH (follicle stimulating hormones) and LH (luteinizing hormone) in animals. The drug also increases the weight of ovary, uterus and body weights, while uterine weight in immature rats increased in extract treated group [91].

3.11.9 Antifungal

Essential oil exhibited a potential inhibition activity against toxic fungi of the genus *Aspergillus parasiticus*, *A. parasiticus* and *A. flavus* [66, 92-94].

3.11.10 Anti hyperlipidemic Activity

The aqueous extract of *Carum carvi* exhibited a potent lipid lowering activity in both normal and streptozotocin-diabetic rats after single and repeated oral administration and diet induced hyperlipidemic rats. It also found that the hyperlipidemic positive control group rats showed variable increase in serum triglycerides, LDL (low density lipoproteins) and total cholesterol levels [95-99].

3.11.11 Antimanic

Carvone is a monoterpene present in *Carum carvi* essential oil showed antimanic activity against methylphenidate-induced hyperactivity in mice [100].

3.11.12 Antimicrobial activity

Oils as well as their aqueous and solvent derived extracts showed potential antimicrobial activity against a range of useful and pathogenic gram-positive and gram-negative bacterial strains e.g. *S. aureus*, *S. aureus*, *S. aureus*, *E. coli*, *Salmonella enterica serovar Enteritidis* *Bacillus cereus*, *Candida albicans*, *Aspergillus niger*, *Penicillium spp.* etc [101-111].

3.11.13 Antiobesity

Arq-e-Zeera is a distillate product significantly showed more potential antiobesity effect than orlistat on high fat diet - induced obese rats via hypolipidemic, hypoglycemic,

hypoinsulinemic, hypoleptinemic and pancreatic lipase inhibition action ^[112]. Aqueous extract of *Carum carvi* suppress appetite and anthropometric indices in aerobically trained, overweight, and obese women were in a triple-blind, placebo-controlled, clinical study ^[113-115].

3.11.14 Antioxidant Activity

Hot water extract, Essential oil isolated by hydrodistillation from dried caraway fruits showed dose dependent antioxidant activity ^[66, 116-125].

3.11.15 Anti-plasmodial

In a in-vitro study essential oil found active against *P. falciparum* ^[126].

3.11.16 Anti-stress (Adaptogenic) and nootropic activities

Aqueous extract of *Carum carvi* showed anti-stress activity in normal and forced swim stress induced in rats ^[127].

3.11.17 Antiulcerogenic activity

The extracts obtained from caraway showed dose-dependent antiulcerogenic effect against indomethacin-induced gastric ulcers, accompanied by reduction in acid and leukotrienes/output, and increased release of mucin and prostaglandin E2 ^[128]. *C. carvi* essential oil showed antiulcerogenic activity in HCl/ethanol causes injury to the gastric mucosa ^[130].

3.11.18 Bio-enhancer

Carum carvi extract acts as a bioenhancer and modifies the kinetics of antitubercular treatment by increasing plasma levels included C max, area under curve, time to reach maximum plasma concentration, clearance, volume of distribution, and half-life ($t_{1/2}$) when given in healthy male volunteers along with FDC (rifampicin, isoniazid, and pyrazinamide) ^[130-131].

3.11.19 Bronchodilator activity

Fraction of *Carum carvi* showed relaxant effect on tracheal smooth muscle with a stimulatory effect on β_2 -adrenoceptors mechanism for treatment of obstructive pulmonary diseases ^[132].

3.11.20 CNS Activity

Its oil reversed morphine dependence in a dose-dependent manner as evaluated by decreased conditioning scores in mice ^[133].

3.11.21 Diuretic effect

An aqueous extract of caraway in peroral treatment, increase the urine output during and after 24 hours in rat ^[134].

3.11.22 Estrogenic/Antiosteoporotic activity

An aqueous and an ethanolic extract of Cumin seeds produced significant antifertility effect via modulation of follicle stimulating hormone and leutinizing hormone levels, while the estrogen levels were increased. It also increase in the weight of ovary, uterus and also body weight. It oil effective in inhibiting tonic and phasic rhythmic contractions of isolated uterine preparations ^[135].

3.11.23 Gastrointestinal effect

Caraway oil displayed high degree of inhibition in the growth of potential pathogens associated with a number of gastrointestinal and systemic disorders ^[136, 137].

3.11.24 Hepatoprotective Activity

Caraway oil showed hepatoprotective effect in cadmium chloride and carbon tetrachloride induced hepatotoxicity in rat and mice ^[136, 138-139].

3.11.25 Hypothyroidism

ontinuous use of *Carum carvi* by a papillary thyroid carcinoma patient increases the TSH level ^[140].

3.11.26 Immunomodulator Activity

Cumin showed immuno-modulatory properties in normal and immunesuppressed animals via modulation of T lymphocytes expression in a dose-dependent manner by stimulating the T cells (CD4 and CD8) and Th1 cytokines expression in normal and cyclosporine-induced immune-suppressed mice ^[141].

3.11.27 Improve female fertility

Aqueous extract improved female fertility against cadmium chloride intoxication in rats ^[138].

3.11.28 Insecticidal activity

Essential oil of *C. carvi* fruits and its major components were possessing strong insecticidal activity against *Sitophilus zeamais* and *Tribolium castaneum* adults as well as repellency against several insects and mites, e.g. Japanese termite (*Reticulitermes speratus*), rice weevil (*S. oryzae*), sciarid fly *Lycoriel*, lesser grain borer (*R. dominica*), red flour beetle (*T. castaneum*) and flat grain beetle (*Cryptolestes pusillus*) and stored food mite *Tyrophagus putrescentiae* and against adult male and female German cockroaches ^[142-157].

3.11.29 Larvicidal Activity

Essential oil has been reported for its larvicidal activity against the Asian tiger mosquito, *Aedes albopictus*, and the inhibition of acetylcholine esterase with their components ^[158-160].

3.11.30 Molluscicidal activity

Crude powder of *Carum carvi* showed molluscicidal activity against *Lymnaea acuminata*. These snails are the intermediate host of liver fluke *Fasciola gigantica*, which causes 94% fascioliasis in the buffalo population of northern India ^[161-169].

3.11.31 Muscle relaxant

Ethanol extract significantly inhibited the response to smooth muscle cells of guinea pigs to of SMC to acetylcholine, relieving gastrointestinal symptoms associated with dyspepsia ^[170].

3.11.32 Nephroprotective

Plant extracts significantly decreased the AGEs formation and amyloid aggregation in glycated BSA and reversed many modifications in albumin glycation, cellular dysfunction indicating that dietary sources with antiglycating and antioxidant potential for the effective management of streptozotocin induced diabetic nephropathy ^[171-173]. Aqueous extract showed nephroprotective activity against cadmium chloride intoxication in rats ^[138]. Hydroalcoholic extract or essential oils of caraway probably have a protective role in kidney tissue against oxidative injury in advanced stages of sepsis by experimental cecal ligation and puncture model ^[173].

3.12 Contraindicated and adverse effect

According to Unani classical literature *Zeera siyah* produces some side effects when used in excess or for a long time Weakness [2, 14-16, 26]; Adverse effect on Intestine [1, 14, 19, 30]; Adverse effects on Lungs [1-2, 14-16, 19, 21, 26]; Yellow colouration of skin [1, 3, 14, 16, 20, 26].

3.13 Unani formulations:

In Unani pharmacopoeias the following Unani formulations are mentioned in which *Zeera Siyah* is included as chief ingredient or as one of the ingredient. These formulations are used for different disease condition.

<i>Jawarish Kamooni</i> [174]	<i>Majoon Jalali</i> [174]	<i>Majoon Kalkalanaj</i> [174]
<i>Majoon Kundur</i> [174]	<i>Majoon Nankwah</i> [174]	<i>Majoon Suranjan</i> [174]
<i>Safoof Moya</i> [174]	<i>Safoof Qaranfal</i> [174]	<i>Jawarish Kamooni Kabeer</i> [175]
<i>Jawarish Kamooni Mushil</i> [175]	<i>Habb Aaksar</i> [175]	<i>Habb Qatil Deedan</i> [175]
<i>Qurs Sumaq Mushthah</i> [175]	<i>Majoon Niqris</i> [175]	<i>Majoon Petha Pak</i> [175]
<i>Majoon Yahya Bin Khalid</i> [175]	<i>Jawarish Kamooni Mushil</i> [175]	<i>Habb Ibn Haris</i> [176]
<i>Qurs Podina</i> [177]	<i>Jawarish Podina Vilayti</i> [177]	<i>Majoon Jograj Gogul</i> [177]
<i>Majoon Muqawwi-e-Meda</i> [177]	<i>Arq Zeera</i> [177]	<i>Ikseer-e-Atfal</i> [177]
<i>Namak Ajeeb</i> [178]	<i>Namak Sulaimani</i> [178]	<i>Safoof Mohazzil</i> [178]



Fig 1: Kamoon (*Zeerah Siyah*) (*Carum Carvi* Linn)

4. Conclusion

Earlier two reviews on *Zeerah Siyan* (*Carum carvi* Linn) are available only covers its phytochemistry and pharmacology [179-180]. *Zeerah siyah* is mentioned in Unani Classical literature and have third degree of Hot and Dry temperament. It is advised to be used after detoxifying in vinegar by soaking for *Teen Shabana Roz* (two days and three nights). A number of studies based on the actions mentioned in Unani Classics have proved the efficacy of this drug in different ailments like cancer, gastrointestinal disorders, diabetes, hypolipidemia. After reviewing the pharmacological actions of the drug e.g Immunomodulator Activity; CNS Activity; Estrogenic/Antiosteoporotic activity; Antimicrobial activity; Antidiabetic activity; Hypolipidemic Activity; Antioxidant Activity; Anti-stress; (adaptogenic) and nootropic activities; Antifertility activity; Anti-colitic activity; Molluscicidal activity; Insecticidal activity; Anti Cholinesterase activity; Anticarcinogenic; Hepatoprotective Activity; Antiulcerogenic activity; Gastrointestinal effect; Diuretic effect etc. it was observed that most of them were mentioned in Unani classics

and scientific community have proved the claims of Unani scholars by conducting different studies on animal models. Different photochemical constituents isolated from the plant have the ability to cure and manage many diseases. Many more researches may be done to prove the claims of Unani scholars. Pharmacodynamic studies may also be conducted in future for further exploration of the drug for benefit of mankind. This review is a step to provide a direction of new researches for therapeutic efficacy of this important plant of Unani medicine.

Conflict of Interest: None

5. Acknowledgment

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